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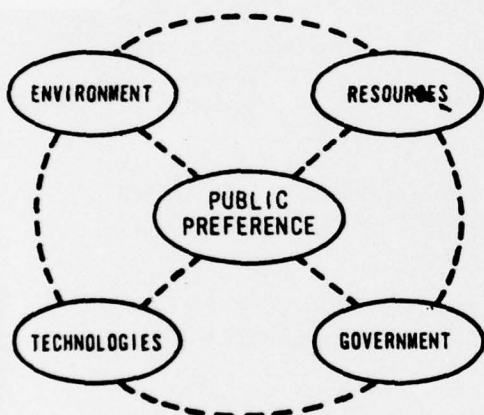
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# WASTEWATER MANAGEMENT STUDY FOR

ADA 036651

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CHICAGO  
SOUTH END  
LAKE MICHIGAN.



## APPENDIX I.

### COMMENTS.

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DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

11 JANUARY 1974

12 1984

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## REPORT COMPOSITION

The survey report is divided into a Summary, and 9 Appendices. A charge for each appendix and Summary Report to cover the cost of printing will be required, should purchase be desired. The appendices each contain a different category of information. Alphabetically identified, the appendices are:

A. Background Information - This appendix includes the population and industrial projections, wastewater flows and the engineering data used as a basis for planning.

B. Basis of Design and Cost - This appendix contains the criteria and rationale used to design and cost the final alternative wastewater treatment system components.

C. Plan Formulation - The appendix presents the planning concepts and procedures used in developing the alternative wastewater management plans that were examined during the study.

D. Description and Cost of Alternatives - This appendix contains a cost description and construction phasing analysis for each of the final five regional wastewater management alternatives. Components of these alternatives are described in detail in Appendix B.

E. Social - Environmental Evaluation - This appendix provides an assessment of the social and environmental impacts likely to arise from the implementation of the final five alternatives.

F. Institutional Considerations - This appendix presents an assessment of the institutional impacts likely to arise from implementation of the final five alternatives.

G. Valuation - This appendix presents a broad evaluation of the implications and use potential inherent in the final five alternatives.

H. Public Involvement/Participation Program - This appendix documents the program used to involve the public in the planning process.

I. Comments - This appendix contains all of the formal comments from local, State and Federal entities as the result of their review of the other appendices and the Summary Report. Also capsulized are the views of citizens presented at public meetings.

The Summary document presents an overview of the entire study.

CHICAGO-SOUTH END OF LAKE MICHIGAN AREA

WASTEWATER MANAGEMENT STUDY

APPENDIX I  
COMMENTS



DEPARTMENT OF THE ARMY  
Chicago District, Corps of Engineers ✓  
219 South Dearborn Street  
Chicago, Illinois 60604

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## PREFACE

The purpose of this Appendix is to present the perspective that the various governmental agencies, citizen groups and individuals have in relation to each of the alternative wastewater treatment technologies, areawide systems and planning options considered during the final stages of this study. With the printing of this appendix, the Chicago District will have completed the wastewater management study for the Chicago-South End of Lake Michigan area. Public involvement during this study was extensive. However, it should be realized that a large amount of information has been presented in this report; and from the public's reaction it is evident that the complexity of the study has been the cause of much concern. The study addresses highly technical and unfamiliar issues, and has sought to include a multitude of related items dealing not only with environmental concerns but also the social aspects and the regional needs. Thus, after examining the impacts that have been quantified or qualified as part of the study effort, it has become readily apparent that there is no one "best" solution as such.

The report has purposely refrained from characterizing the range of impacts identified as either being beneficial or detrimental. Nevertheless, opinions on the implications of these impacts have been voiced and recorded at the series of public meetings and work groups held during the various stages of study. Since the transcripts of these meetings are an integral part of the study findings, these records will reflect the positions of those citizens, and organizations that make up the affected public.

Because this was a planning study, there will be no recommendations made regarding any of the technologies or the alternative wastewater management systems. Implicit in this water quality goal is the control of both point and non-point sources of pollution. This objective will make it more advantageous to plan and design the wastewater management systems as a primary vehicle with which to meet the area's other water and related land needs. So will the objective for resource conservation and reuse. Acceptance of these objectives as planning goals will complicate the decision-making process for upgrading the level of treatment and modifying existing wastewater management systems. Such decisions cannot be made on just a technical and cost-effective basis. Instead, the final answer must be determined by the residents of both the study and outlying areas working with the States in determining a solution acceptable to all.

In reality, there are two aspects to consider - what is one's preference and what is one willing to forego. It is within this context of consideration that the alternatives must be eventually evaluated.

This evaluation, of course, will be balanced within a personal framework of desires or goals. For this reason, an array of viewpoints have been sought regarding the desirable or undesirable aspects of each alternative wastewater management system and planning option. It is hoped that these perspectives will assist those responsible for selecting the type of action programs which should be implemented.



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SECTION I

INTRODUCTION



## APPENDIX I - COMMENTS

### SECTION I - INTRODUCTION

#### STUDY OBJECTIVES

The primary purpose of this study was to identify and evaluate viable alternative wastewater management systems that would eliminate the discharge of pollutants into an area's streams. This was the same water quality objective included in the Federal Water Pollution Control Act Amendments of 1972, Public Law 92-500, as a national goal to be achieved by 1985. The alternatives which were evaluated represented a diversified array of regional solutions for the Chicago-South End of Lake Michigan (C-SELM) area; systems capable of meeting this new national environmental goal.

Also examined was the potential for multiple use planning in meeting local water and related land needs. This included the opportunities for both resource conservation including recycling and reuse of the area's natural resources. In addition, the on-going regional planning goals for meeting the current water quality standards and guidelines were evaluated. This was done in order to obtain a base with which to compare the implications of the higher water quality goal and as a planning service to the study area.

#### SCOPE OF STUDY

The study has focused on four basic issues. The first concerns the implications involved in meeting an effluent standard that would be representative of the higher (1985) water quality goal set forth in Public Law 92-500. This involved a three step process of: (1) developing the engineering and design data pertinent to those treatment technologies capable of meeting the criteria of "no discharge of critical pollutants" (NDCP); (2) quantifying the resource requirements associated with the construction and operation of areawide management systems including the costs, to similar data for achieving, the then-current water quality standards and guidelines in order to obtain a more meaningful evaluation of the NDCP goal. Implicit within this comparative assessment was the second issue. The second issue involved the differentiation between the then-current standards and those standards representative of the NDCP goal, particularly the sources and types of pollutants to be controlled and treated.

The foregoing two issues were essentially technical in nature. The remaining two issues were not. The third issue concentrated on identifying the impacts resulting from a consolidation of the local treatment facilities into more of an areawide system. This process called, "regionalization" has significant implication to the taxpayer, since it can effect economies in scale, both in capital investment and annual operating charges. However, regionalization does run counter to the concern for maintaining local control (home rule). Therefore, the economic gains eventually must be balanced against the social and institutional tradeoffs.

The fourth issue dealt with the subject of resource conservation. The potential for such an objective was examined by assessing the opportunities for satisfying various water and related land requirements through recycling and the reuse or multiple usage of the area's resources. These add-on considerations represent opportunities to meet other area or regional needs with significant savings in cost and resources. In some cases, the system provides the resource base with which the added benefit(s) can be readily attained. In other cases, the potential for achieving multiple returns are enhanced, but additional financial and/or resources commitments are required. In all cases, the opportunity for multiple-use and return is greatly improved and the level of expenditure will be lower than that which would be incurred on a single-purpose basis. Some of the potential for add-on gains were found to be dependent upon the technology involved, while the remainder were effected by other system components.

In addition to the foregoing, the potential for change in the social, environmental and institutional structures of the affected areas were either quantified or qualified. All of these findings were based on an evaluation of five different alternative wastewater management systems and various optional considerations which evolved from a three-stage plan-formulation process.

#### STUDY VALUE

With publication of this report the Chicago District will have completed the wastewater management study for the C-SELM area. This has been a planning study only. Hopefully, these findings can be used by those State and local agencies responsible for the planning, construction and operation of wastewater management systems in the study area.

In net effect, the study provides a framework for decision. Three basic technologies which can be used to meet the 1985 national water quality goal are identified, along with the design of each process. As previously indicated, the implication of incorporating these technologies into areawide plans have also been evaluated. As would be expected, each

technology and wastewater management system differs in its impacts. Knowledge of the variations in impacts and awareness of the potential for multiple-use planning will help those responsible for such decisions to select a system best suited to the area's needs and most acceptable to the residents.

This report will also help the States, regional clearing-houses and local agencies in Northeastern Illinois and Northwestern Indiana in responding to the provisions of Public Law 92-500. In particular, the information contained in the report should help the designated agencies meet the requirements of Section 201(g)(2)(A) of Public Law 92-500 which stipulates that after 30 June 1974, requests for Federal grants must demonstrate that: (1)...."alternative waste management techniques have been studied and evaluated..."; and (2)"...the works proposed for grant assistance will provide for the application of the best practicable waste treatment technology over the life of the works...."

#### OVER-ALL STUDY PERSPECTIVE

A large amount of information has been presented in a relatively few documents. From an overview perspective, however, it should be clear that the study is complex. It not only addresses issues that are highly technical and unfamiliar to the average citizen, but also seeks to include a multitude of related items dealing with environmental concerns, social aspects and regional needs. After examining the impacts associated with each of the five alternatives, it is readily apparent that there is no one "best" solution as such. In time, the technology and degree of regionalization to be employed must be determined by the residents of both the study and outlying areas working closely with the Federal and State agencies to assure a commonality of objectives.

In arriving at these decisions, there are two aspects to consider: (1) what is one's preference; and (2) what is one willing to forego. It is within this context of consideration that the alternatives have to be evaluated.

The report has purposely refrained from characterizing an impact and its effect as being either beneficial or detrimental. Nevertheless, opinions as to the implications of these potential impacts have been voiced and recorded at the series of public meetings and work group sessions held during the course of this study. The transcripts of the public meetings are an integral part of the study findings and reflect the positions of those citizens and organizations that make up the affected public.

The public reaction to the study has been widely diversified. All desire and support the objective of cleaning up our environment and improving the



recreational potential of the area's streams. At the same time, there is a concern over the cost and increased sewer charges that will have to be borne, if and when plans are implemented to achieve the NDCP water quality goal. Concurrent with this concern is an anxiety relating to the disposal of the sludge that would be generated as a residual by-product of the treatment process. At issue are the implications to land-use and future growth patterns if this sludge is to be effectively recycled and used either as a nutrient and humus builder in rehabilitating surface-mined areas or in lieu of commercial fertilizer for agricultural production.

Impacts pertinent to the individual treatment technology also became the focus of public attention. There was a major concern regarding the Physical-Chemical technology and its adverse effects on the ambient level of air quality. Design of the Physical-Chemical treatment plant utilizes incineration, not only to recycle and reclaim the treatment chemicals, but also to effect a partial removal of the ammonia nitrogen. As a result, there are considerable chemicals and particulates discharged into the air. These discharges would meet the then-current air emission standards established by the U. S. Environmental Protection Agency except for nitrogen oxides, a burning type irritant once inhaled. Moreover, the large amount of other particulates and chemicals discharged into the air was also a matter of concern, since they were considered a potential detriment to the vegetation and ground cover within the study area.

Strong social and political opposition also was expressed relative to the Land treatment technology by those residents residing in the outlying area. The concerns voiced by these people reflect the fact that the technology would directly impact on their life style. There was an anxiety over the fact that the Land treatment could impact on the agricultural community's cohesion, farming practices, economic growth and freedom of action. In net effect, the life style of the agricultural community would be changed by restricting its land-use pattern to one reflective of its present agricultural base, rather than encouraging conversion to other types of development. While provisions were made for continued growth of the communities, retention of large land blocks in agricultural usage would tend to be disruptive to the long-range regional growth patterns emanating out from the urban metropolitan area. In addition, the participating farmer would have to adjust his farming practices and operations, adopting field practices that lend themselves to an irrigation system. Aside from the provisions for net income protection and the potential for economic gains, adoption of the Land technology could impose certain short-range constraints on the type of crops which can be grown because of the nutrient-uptake requirements of the crop.

At the same time, the attitude of the residents in the outlying area reflected a natural unwillingness to commit their land to treat the wastes of somebody else (the metropolitan area). Members of the agricultural communities also felt that there is a definite need to demonstrate the



workability of the Land treatment system. Until it can be demonstrated that a definite economic gain would be forthcoming without affecting his life style, the farmer's unwillingness would delay the use of the Land treatment technology as a method for achieving the NDCP water quality goal.

Finally, there was a basic concern that the level of resource expenditures associated with the NDCP alternatives were beyond a level heretofore experienced. It was felt that the extent and the priority with which this nation commits its resources in achieving this environmental goal must be assessed in relation to the causal effects on those programs responsive to other public needs. Furthermore, if a realistic program is to be achieved and the economies of scale (regionalization) realized, institutional arrangements must be adopted that reasonably maintain the integrity of home rule by the individual counties and communities.

#### INDIVIDUAL PERSPECTIVE

The range of impacts associated with the PL 92-500 objectives will complicate the decision-making process for upgrading the level of treatment and modifying existing wastewater management systems. Over time, such decisions will be made on more than just a technical and cost-effective basis. The objective to control both point and non-point sources of pollution will make it more advantageous to plan and design these systems as a primary vehicle with which to meet the area's water and related land needs. So will the objective for resource conservation and reuse. Acceptance of these objectives as planning goals will require an in-depth assessments and a balance in the trade-offs involved between the economic and environmental concerns, social aspects, institutional constraints and regional needs.

This study has identified the potential changes to existing conditions that would be brought about by alternative management systems designed to achieve the NDCP water quality goal and encourage resource conservation. Whenever possible, these impacts have been measured using numbers derived from design data. Care was taken to minimize the use of subjective judgment. Even so, the very nature, magnitude and number of these impacts became the major focal point of concern. Due to the complexity of these findings, individual viewpoints were solicited from those citizen groups who participated in the study effort as well as those Federal, State and local governmental agencies known to have an interest in this study. Each group or agency was furnished a copy of the draft Summary Report and appendices and asked to comment on the desirable and undesirable aspects of each alternative and planning option as perceived by that organization. Of the 54 work groups and agencies contacted, some 31 replies were received. All of these letters together with the response from the Chicago District

Office are reproduced in the following sections. In each case, the response by the Corps was limited to answering those concerns that were raised and which required clarification for mutual understanding.

Reproduced in Section II are those letters received from individual Federal agencies or the regional offices of the various Federal Departments. The third section contains the comments received from the States, State Representatives and the regional clearing-house agencies. These latter agencies have the responsibility to review all local work plans including those involving Federal expenditures, in order to insure their compliance with regional planning objectives. The fourth section includes letters from local governmental agencies within the study area. These agencies include those having the responsibility for either wastewater management or water and related land resource development or both. The last section, Section V, contains the responses received from the individuals and interested citizen groups who participated directly or indirectly in the study effort.

SECTION II

COMMENTS

FROM

FEDERAL AGENCIES



UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION V  
1 NORTH WACKER DRIVE  
CHICAGO, ILLINOIS 60606

November 15, 1973

Colonel James M. Miller, District Engineer  
U.S. Army Engineer District, Chicago  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

In response to your request for our review of the Chicago-South End of Lake Michigan (C-SELM) study we are providing the following comments for your information.

The document reflects a very commendable effort by the Corps of Engineers in attempting to resolve the wastewater treatment needs of one of this country's largest metropolitan areas in a very short period of time. The study has resulted in an enormous quantity of useful information, in particular, providing insight into the methods and costs involved in reaching the "no discharge of critical pollutants" (NDCP) objective. The summary report provides a good capsule version of this massive study and should be helpful to most interested individuals in understanding the study and problems.

The NDCP alternatives presented reflect massive investments of both dollars and energy resources and a redirection of the current approach to wastewater problems, yet the conclusions of the study do not describe a method of implementation. While the study addresses itself to the technical complexities of an urban wastewater management study, the institutional arrangements in effect in the area probably offer more nearly insuperable obstructions to the achievement of effective urban management than the technical difficulties. Without resolution of these arrangements the study can only necessitate additional studies and does little to affect the current course of action. Massive investments of funds currently programmed should be directed in manners which can be incorporated into NDCP alternatives, but may upon implementation restrain future choices. The lack of recommended transitional actions is a deterrent to implementation by 1990.

Similarly alternatives to urban wastewater management should be considered in terms of areawide comprehensive planning in which requirements for transportation, land use, water, other utilities and power and energy conservations are balanced for optimum public good. The concept of one regional system of extremely long and easily accessible transports sewers, could greatly restructure the entire growth patterns of the area.



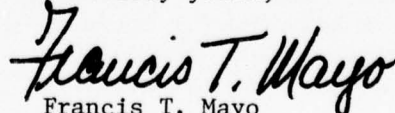
It appears that this study is putting significant importance on control of stormwater run-off from a water quality standpoint while this may not be totally justified. In general, EPA policy has been to promote at least primary-level treatment and disinfection of flows from combined storm-sanitary sewers, and other measures necessary to insure attainment of water quality standards. There has been no clear-cut statement of policy as to treatment of flows from single purpose storm sewers. Impairments to water quality resulting from overland flood flows must be considered non-point source pollution, but the entire problem must be studied in some detail before judgments may be made as to the feasibility of treating any part of flood flow.

The report gives considerable attention to land disposal of sewage and sludge. Our agency definitely has no policy prohibiting disposal of wastewater on land; rather EPA is financing some of the research aspects of a full scale land treatment system in Michigan and is carefully studying the effects on the environment. Additionally, various research projects addressing land reclamation and sludge disposal are in operation throughout the country. But a project of the magnitude utilizing primarily good quality farm land does not appear justifiable at this time. Certainly further analysis than that presented in this study addressing the technical value, economic benefits, freedom from transmissible disease, contamination of heavy metals, and general environmental assessment are required before advocating or attempting widespread dissemination of this method.

The public hearings also emphasized the need to seriously address the wisdom of converting a significant portion of the nation's agricultural lands into a restricted land use. At the onset of the study, it was our anticipation that a useable metropolitan plan would be produced. Since five proposals are presented without conclusion, this has not been obtained. It now remains for the State and local agencies to produce a plan which will be the basis for evaluating construction grants for waste treatment facilities. Even though they could select one of the forms, in all likelihood, some features of all proposals will be used in the final plan.

In conclusion, there is no question that this study will be a valuable tool in helping people assessing the NDCP objective, and provides some feel for monies and energy resources needed to meet this objective. However, the apparently most economical alternative to achieve NDCP that this study promotes has not been shown to be environmentally sound or sociably acceptable. Until these issues can be resolved it remains a theoretical solution to a problem which needs rapid and concrete solutions.

Sincerely yours,

A handwritten signature in dark ink, reading "Francis T. Mayo". The signature is written in a cursive, slightly slanted style.

Francis T. Mayo  
Regional Administrator



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

3 January 1974

Mr. Francis T. Mayo  
Regional Administrator  
Region V  
U. S. Environmental Protection Agency  
1 North Wacker Drive  
Chicago, Illinois 60606

Dear Mr. Mayo:

This is in reply to your comments on our draft report concerning the Chicago-South End of Lake Michigan area wastewater management study. Your letter, along with this reply, will be published in Appendix I, Comments. The responses follow the same sequential order as the comments presented in your letter.

The study purposely does not recommend a particular method of implementation; this was not the objective of the study as defined by the authorizing Congressional resolutions. Rather, the Corps was to identify and evaluate viable alternative wastewater treatment technologies and systems that would eliminate the discharge of pollutants in the area's waterways, and which could be incorporated into areawide or regional plans. Consequently, the report is a planning study only. However, it does provide a framework for decision which can be used by those agencies responsible for meeting the requirements of Section 201(g)(2)(A) of Public Law 92-500. Final decision as to method of treatment and degree of regionalization is a local responsibility and should evolve from logical planning and institutional considerations. Hopefully, the Regional and State certifying agencies will work closely with your office in achieving the multiple objectives of PL 92-500.

Identification of specific action required to achieve the transition from current standards to the 1985 national water quality goal, elimination of pollutant discharges, was considered premature for this state of study. Even so, the framework for such assessment is provided. The NDCP alternatives represents an array of viable, areawide wastewater management systems any of which could be implemented if the 1985 national water quality goal was to be achieved in one stage of construction. The economic implications of achieving the transition in two stages; i.e.,

NCCPD  
Mr. Francis T. Mayo

3 January 1974

achieving the current water quality goals first, and the 1985 national goal in a later time frame was also identified. The trade-off, i.e. the savings foregone, are presented in Section IV of the Summary Report and detailed in Section IX of Appendix G. Any evaluation involving other intermediate types of transitional actions must await the development of criteria pertinent to the 1983 water quality goal by your agency. These guidelines could serve as the basis for a more meaningful staging of the planning efforts and would be dependent upon your agency objectives in implementing its construction grant program.

Your observations concerning the basis for areawide planning are reflective of the report's findings. As stated in Section XIV of the Summary Report, the impact of regionalization is probably one of the most significant factors involved. To help local and regional planners establish the character of any management system, the five alternatives retained for final study have been structured to provide basic design and impact implications for varying degrees of regionalization.

The need for and relative importance of controlling stormwater runoff is directly dependent upon the water quality goal under consideration. The then-current water quality objectives are characterized by the treatment standards and water quality guidelines of the referenced plan, Alternative I. As such, there are no provisions included for the capture and treatment of storm water runoff except where combined sewer systems exist. On the other hand, the NDCP alternatives are designed to eliminate the discharge of pollutants in the waterways from both point and non-point sources. The design criterion used to determine the amount of stormwater runoff to be captured and treated was based on a study of constituent loadings from separated stormwater sewers. See Section II of Appendix G. The results of preliminary routings indicated that the first 2.5 to 2.8 inches of runoff would contain sufficient contaminants to contravene the in-stream quality to a level less than that defined by the NDCP water quality goal. The analysis was based on the current practice of using the seven-day, 10-year low flow as the base equivalent of the natural stream flow. For most streams in the study area this base flow approximates zero flow or, at best, the dry weather discharge from existing sewage treatment plants. Since there is no national policy concerning the control of non-point sources of pollution, the costs as well as the social, environmental and resource implications of the storm water system components were evaluated on an incremental basis. In this way the implications associated with the control of non-point sources of pollution can be independently assessed.



NCCPD

Mr. Francis T. Mayo

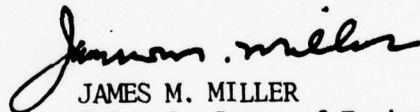
3 January 1974

The report assesses land as a method for treatment of wastewater and sludge disposal within the same evaluation framework applied to other technological processes. The use of land for these two purposes is in consonance with the objectives of PL 92-500. I do, however, agree that additional design and performance data is required before attempting the wide-spread use of this as well as other forms of advanced treatment. There are many examples of concern that must be resolved before final design of all three technologies is undertaken. These are discussed in the Summary Report and detailed in Section XI of Appendix G.

In my opinion much of the strong political and social opposition to the land treatment alternatives reflects a reluctance on the part of the agricultural community to use their resources to resolve an urban problem. It also reflects a concern that the land system might not work as designed even though the process employs proven agronomic practice and utilizes known soil scientific principles. While both these reactions are to be expected, it is disturbing that so few realize that the latter type of concern applies in a comparable manner to the plant technologies as well.

In conclusion, I wish to express my personal thanks for your kind remarks concerning the study and its usefulness in helping the people assess the NDCP objective. Our assessment has purposely tried to underscore the necessity to consider all recognizable implications of wastewater management planning. Therefore, it is important to recognize that the economics associated with the various alternatives should not be the sole determinant in the selection of the individual system components.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer





# United States Department of the Interior

OFFICE OF THE SECRETARY  
NORTH CENTRAL REGION  
536 SOUTH CLARK STREET  
CHICAGO, ILLINOIS 60605

November 15, 1973

Col. James M. Miller  
District Engineer  
U. S. Army Engineer District  
Chicago  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Col. Miller:

The Department of the Interior has reviewed the Wastewater Management Study for the Chicago-South End Lake Michigan (C-SELM) Area which was requested of us in your covering letter of September 24, 1973. The following comments which are both of a specific and general nature constitute a combined effort of Interior agencies having specific concerns in respect to this study.

The primary objectives of the study were to identify and evaluate viable alternative wastewater management systems that would be responsive to the intent of Public Law 92-500. These alternatives are designed to offer an array of regional solutions to an area-wide problem. Also considered were opportunities to effectively recycle and reuse the area's natural resources. In addition, regional planning goals for meeting current water quality standards and guidelines were evaluated. Of the 19 alternatives initially considered, five are retained for final study.

We strongly favor the improvement of water quality which the various alternatives would provide to the streams of the study area. This improvement would greatly benefit natural resources and related recreation potential of the floodplains through which these streams flow. Floodplains with good water quality could provide a wide variety of outdoor activities. However, developmental interests will be aggressive in the development of such areas for residential, commercial, industrial, and other intensive uses; and, as such, these areas must be committed to open space and related uses quickly to avoid their loss for that purpose.

#### Appendix A--Background Information:

We agree with the incorporation of natural resource policies which have been established by the Northeastern Illinois Planning Commission (NIPC) and the Lake-Porter County Regional Transportation and Planning Commission (LPCRTPC). The LPCRTPC policy (Appendix A, page A-V-6) states, "Special steps should be taken to protect areas containing valuable sand, gravel, and limestone deposits from intensive urban development until the deposits have been fully exploited. The appropriate reuse of such lands after the resource has been depleted should be planned in advance." The NIPC policy statement on page A-V-4 of Appendix A, is essentially the same.

Certain base data and interpretive reports credited to the U.S. Geological Survey (beginning on page A-IV-2) appear to be correctly used in the C-SELM Report. Since minimum hydrologic flows are of great concern, we concur with the statement that the worst environmental conditions in natural streams are generally associated with low flows. Page A-VI-1 rightfully documents the restriction placed on Illinois for diversion of Lake Michigan water to the Illinois Waterway (Note: The U.S. Supreme Court Decision in 1967 limited the diversion to 3,200 cubic feet per second).

#### Appendix B--Basis of Design and Cost:

##### II. Summary of Design

Each alternative involves excavation and handling of large quantities of rock and soil materials in the construction of storage facilities and deep tunnel and shallow conveyance systems. It has been estimated (Section II-F) that 306 million tons of rock would be extracted and disposed in some way. Three options are discussed for the management and end use of the excavated material: commercial, reclamation, and recreation. Proper management is essential for the large volume of rock and soil to be removed. The material would have to be stockpiled and integrated into the aggregate market to prevent destruction of the present aggregate industry. Deposits of sand and gravel and stone are becoming unavailable because of the rapid rate of land development that preempts deposits before they can be mined, and restrictive controls that prohibit mining or make it uneconomical.

#### IV. Component Basis of Design

Shallow pit storage (page B-IV-D-30 to 33)--These storm water storage impoundments would have substantial areas of mudflats after each draw-down of storm water for treatment. These areas will be unsightly in proximity to either recreational or residential areas. If recreation areas are placed close to these impoundments, measures will need to be taken to keep people, especially children, from the contaminated waters.

The report suggests the use of some pits, which will have been drained dry after storms, for playfields. Before such utilization could be made of these areas, they would require much clean-up of debris and oil film. In addition, the report states, page B-IV-D-33 and Summary VI-9, that body-contact use of the water would not be recommended. We question the use of the pit floor for recreation since these same water contaminants will have been deposited on the surface.

Component Design (page B-IV-F-4)--We believe that the sculptured landscape would provide the setting for certain types of recreational opportunities such as skiing, sledding, motorcycle scrambling, etc.; not now readily available in the Chicago area. However, a good 600-acre tract of land developed for intensive recreational use would support a greater amount of visitation than a similar area covered with a mountain of rock spoil.

Recreational Islands (page B-IV-F-4 and 5)--The construction of islands in Lake Michigan could help very substantially to alleviate some of the critical need for recreational opportunities in the inner city portion of metropolitan Chicago. This method of rock disposal would provide much more recreational opportunities than the sculptured landscape alternative if adequate, cheap mass transit were made available to inner urban residents. A thorough evaluation of the environmental consequences of island construction would be required, however.

We support the use of sludge to reclaim strip-mined land for agricultural, recreational, and fish and wildlife resource uses.

#### VI. Component Basis of Cost

Any action which results in high tax rates on property or reduces the tax evaluation of property for taxing purposes produces an indirect adverse impact on recreation. Recreation usually is given low priority support from tax revenues. Lower property evaluation and opposition to higher tax rates will adversely affect recreation.

Doubt exists as to the projected supply and demand for nonmetallic mineral resources in the C-SELM region. Before deciding which of the three options should be implemented, projections of supply and demand for aggregate in the C-SELM area should be made for the target years 1990 and 2020 so that a continuing supply of aggregate will be available for the area.

Table E-II-5 Human Activity Dimensions--

8. Immigration and 9. Population Density (page E-II-20 and 21)--We disagree that immigration and increasing population densities are always a positive impact. In fact, many of our urban problems today are directly related to excessive immigration of people to urban areas and the intensification of population densities within those urban areas. Increased population densities result in increased pressures on recreational resources to the detriment of those resources.

Appendix G--Valuation:

VIII System--Related Changes--

Regional Parks (page G-VIII-24)--We question the concept of regional recreation parks being developed in conjunction with irrigation areas under the land treatment alternative.

- a. Recreation areas are not suitable as buffers between areas irrigated with sewage effluents and other agricultural areas. If the land treatment alternative is as safe as it is claimed to be, we see no reason for a buffer zone between irrigated and nonirrigated agricultural lands.
- b. The governmental units in which the land treatment systems are located will have lost large acreages of land to the development of lagoons for that system. To convert additional lands in their areas of jurisdiction to public use will impose an additional hardship on these small, rural units of government by removing more land from the tax roll and by requiring them to provide the necessary policing and other related maintenance for such recreation areas.
- c. The areas in which the land treatment systems are proposed to be installed are not necessarily the most ideal locations for recreational development. Good potential recreational areas are usually not associated with high quality, level agricultural areas. Insofar as possible, recreation areas should be located on lands that are not well suited for intensive agricultural use.



- d. Regional parks to serve the Chicago area should be located closer than 50--60 miles from the central city in order to effectively accommodate those who have the greatest need for additional recreational opportunities. The current energy situation may require that parks be located so as to serve people with a minimum expenditure of energy for transportation.
- e. Mention is made on page G-X-3 of the potential for infrequent odors from the lagoon areas in the spring. This would have an adverse effect on any recreation area located nearby.
- f. Since aerosols can never be completely eliminated in overhead irrigation on windy days and since some viruses are not killed by chlorination, large groups of people using any adjacent regional parks could be unduly exposed to such contaminants.

Also, a level of development with as much as 40 percent of the land area used for recreation facilities on a 2000--3000-acre resource-oriented recreation area is much too high. Most resource-oriented state parks are developed to a level where about 10 to 20 percent of the land is intensively used. Kensington Park, a regional park of 4300 acres including 1200 acres of water and lying only 30 miles from downtown Detroit, is only about 30 percent developed and it is activity oriented. Likewise, a level of development with at least 65 percent of the land devoted to recreational facilities in a 2000 to 3000-acre activity-oriented park is much too high. This level equals or exceeds the level of development in most smaller city parks. It would be very difficult to maintain the resource base under such intensive use. Such a park would need to accommodate a daily visitation of 100,000 or more people, and transportation facilities would have to be available to provide adequate ingress and egress.

#### Satellite Cities (page G-VIII-26 and Summary Report VIII-4)--

The concept of Satellite cities is to be commended, but they should be located, insofar as possible, on those areas that are not composed of high quality agricultural lands. Cities located on broad, flat expanses of land could not offer a variety of scenic settings for recreational purposes. Effective long-range land-use planning may dictate that we preserve our high quality agricultural lands for food and fiber production.

Environmental Quality (page G-X-3)--

In respect to lagoon odors, people who use lands located in close proximity to lagoons under the land treatment system will be forced to accept this nuisance. Even those who are not directly involved, non-cooperating farmers and non-agricultural residents of rural areas and towns, will have these conditions forced upon them if the land treatment system is used. While such odors may occur only infrequently, many of the proposed lagoons are located in such a manner as to permit prevailing winds to carry these odors beyond irrigation district boundaries and thus adversely affect property values by the general downgrading of the environment.

Annex B--Resource Development Plan--

We have some serious reservations about the projected rapid increase in leisure time (page GB-III-15). While it is true that leisure time is increasing as we very slowly begin to move into the four-day work week, not all people are benefiting from this increase. Many people in management or business have experienced little, if any, increase in leisure time. Numerous hourly employees hold a second job, especially people at lower income levels.

The four-day week will still be oriented toward work on Monday through Friday, and as it presently is being used--10 hours a day--it tends to discourage mid-week use of parks. In addition to these factors, about 40 percent of women of working age are employed and this figure is increasing. Therefore, weekend use will probably continue to be much heavier than week-day use for many years to come, and local parks will not be used nearly to capacity during week-days. In light of this, we believe that it is erroneous to assume that recreation facilities will be used to capacity throughout every day of the week for six months of the year.

The annual use rate/acre for many of the types of recreation areas listed in Table GB-III-8 appear to be inflated (page GB-III-16 and G-VIII-18). Using the same mix of recreation facilities set forth on pages GB-III-4 and 7 for a county and community park, respectively, we calculated maximum visitation of 2000 and 5500 annual visitations/acre using design loads substantially above those that we normally use.

It appears that design loads have been used which are greater than the capacity of the resources to sustain use. For example, on page GB-III-16 a 9-hole golf course is rated at an annual visitation of 792,000. A 9-hole course can accommodate only about 350 people per day, at best 400, or only 100,000 over a 250-day season which would be an extreme maximum. Metropolitan Beach, a very intensively developed and used 550-acre park with nearly 100 acres of sand beach, tennis courts, basketball courts, boating, picnicking, and other facilities located in the northeastern edge of the Detroit metropolitan area received only 3,500 visits per acre in 1972. Another 1200-acre park with a full complement of recreational facilities just southwest of Detroit received a visitation of approximately 1400 persons per acre in 1972. The Middle Rouge Parkway, a heavily used 2325-acre linear park intensively developed with facilities for picnicking, playfields, tennis, golf, fishing, winter sports, and other activities and extending for more than 20 miles through urban areas on the west side of Detroit, has an average visitation of 2150 people. We agree that development in urban areas should approach the limits of the resource base to provide a quality recreational experience, but we feel that the rate of visitation per acre and the total annual visitation used in this report are much too high.

#### Summary Report:

#### II. Synopsis of Background Information--

The Indiana Dunes National Lakeshore is within the area of study. With this in mind, we would suggest the section Current Plans and Constraints (pages II-6 through II-8) make reference to Public Law 89-761 which provides for the establishment of Indiana Dunes. The quality of water in and entering into the Lakeshore will have to be maintained at standards sufficiently high to assure the desired preservation of the natural resources of that area. We trust that the effluent from the proposed system will meet the requirements of the Environmental Protection Agency and the State.

From the standpoint of fish and wildlife resources, Alternative II and Alternative V have many features in common which have similar impacts on the resources. These impacts can be related to features under the following headings:

#### Treatment of Storm Water Run-off

Capturing the first 2.5 inches of storm water run-off could have a disastrous effect on wetlands in the study area. These areas rely on surface drainage and to some extent seasonal flooding to maintain moist soil conditions. Also, eliminating the flood potential in these areas would make the bottomland and wetland attractive to development to the detriment of wildlife.

### Collection and Conveyance Systems

The collection and conveyance systems themselves will have little impact on habitat; however, serious consideration must be given to the alternate methods of disposal of the rock and soil obtained during excavation. The disposing of this material in natural wetland or lake areas would be a matter of serious concern to us.

### Treatment and Storage Lagoons

It is doubtful that all of the wastewater treatment and storage lagoons could be managed to provide a significant sport fishery. Lagoons containing untreated waste usually show a strong diurnal oxygen pulse with occasional periods of total oxygen depletion. Various chemicals may be present from industrial waste or surface run-off, which may be directly toxic or render the fish unusable due to bio-accumulation or taste and odor problems. If the lagoon bottoms are paved to prevent percolation to the water table, the establishment of bottom dwelling fish food organisms would be minimal. Without these lower food chain organisms, establishment of a self-sustaining game fish population would be difficult.


A study now underway at Michigan State University will hopefully provide answers to some of the questions concerning fisheries management of sewage lagoon systems. However, at present, we believe that lagoons receiving large volumes of untreated sewage would be unsuitable for fish propagation. The finishing lagoons and treated water storage lagoons offer the greatest potential for a self-sustaining fishery.

The report in general expresses the concern that wildlife management areas with associated food plantings would short-stop migrating waterfowl. To a large extent the length of time waterfowl spend in these managed areas would be directly related to the available food supply. Due to agricultural practices such as fall plowing, food would not be plentiful off the managed area. Therefore, duration of stay could easily be controlled by adjusting the food supply in the management areas.

### Conclusion

We appreciate the opportunity to review the wastewater management study for the Chicago-South End of Lake Michigan area and commend the Chicago Corps District for carrying this difficult study to its completion. The report shows that solving water quality problems and meeting other longer range environmental quality goals is going to be a difficult and expensive task. The Department of the Interior concurs with the study objectives and stands willing to provide technical expertise in resource matters should one of the alternatives be selected for implementation.

Sincerely,

  
for Madonna F. McGrath  
Staff Assistant  
to the Secretary

I-II-14





**DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604**

NCCPD

9 January 1974

Ms. Madonna F. McGrath  
Staff Assistant to the Secretary  
Office of the Secretary  
U. S. Department of Interior  
North Central Region  
536 South Clark Street  
Chicago, Illinois 60505

Dear Ms. McGrath:

The purpose of this letter is to acknowledge your comments on the draft report concerning the wastewater management planning study for the Chicago-South End of Lake Michigan area. Your letter, along with this reply, will be published in Appendix I, Comments. The following responses are in the same order as the comments presented in your letter.

This office supports your statement that attainment of the NDCP goal not only will improve the water quality of the streams in the study area but also benefit the natural resources and related recreational potential of the contiguous floodplain. However, the control of the stormwater runoff implicit in the water quality standards adopted for this study, would impose the potential for a wider range of floodplain use than now exists. Thus your concern for preserving the floodplain lands in open space and utilizing these resources for a wide variety of outdoor recreation is not only germane but also reflective of the objectives of the regional planning agencies.

APPENDIX B - Basis of Design and Cost

The potential of shallow pit storage sites being used for recreational purposes is real and dependent upon the design of the stormwater impoundments. A first level of quality control is achieved when, prior to storage, the stormwater runoff is routed through grit removal chambers to screen out debris and settleable matter. Furthermore, design of the storage area requires excavation with gently shaped, 1 on 4 slopes which are to be maintained in grass. This, in turn, will provide adequate protection from erosion that could result from fluctuation in the stormwater storage and also help avoid the potential for other visual blights. In addition an air-bubbler aeration system would be provided to maintain an odorless, (aerobic) condition. All of these design features should assure a base

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potential for recreational useage. The type of recreational activities which can be programmed is dependent upon the decision, whether or not to maintain a permanent pool. If a permanent pool is to be maintained, the impoundment should be posted to prohibit body contact. Nevertheless such water-based activities as boating and fishing (assuming the pond is stocked) could be encouraged. Picnic and playground facilities also could be installed on the adjacent land and the equivalent setting of a local park provided. Conversely, if the sites are to be totally drained, the impoundments would then be designed with an underdrainage system to enhance the drying-out process and expedite its use for land-related recreational activities such as baseball, soccer, and football. Pits comparable to the latter type are already in existence in the study area and have not been considered hazardous from a public health standpoint.

The concept of a sculptured landscape, as well as the recreational islands should not be assessed solely from a recreational standpoint. Instead, these proposals represent but two of the reuse and conservation options which can be employed when faced with the need to dispose of the rock and spoil generated during construction. The problem associated with the management of spoil material are diversified and complex and must be assessed within the dual framework of economics and effectiveness of resource utilization. As you have indicated, assessment of the environmental consequences of any disposal option also would be required.

The Departmental support for using the sludge from the treatment processes to reclaim strip-mined areas for agricultural, recreational, fish and wildlife uses is noted. Should reclamation involve recreational purposes, then these resources should be incorporated into the State's recreational plan.

The costs for achieving the higher water quality goal will impact, either directly or indirectly, on the property owner. One such impact will be in the form of taxes or user's fees. At the same time, there will be the problems of co-locating the stormwater retention sites and treatment facilities without unduely affecting the long-range property valuation of the adjacent lands. These tax-related problems will occur, regardless of the treatment process involved. On the other hand the resulting improvement to the aesthetics and aquatic environment will enhance the value of property located along the affected streams thereby off-setting much, if not all, of the anticipated revenue loss.

Final decision as to which of the rock and spoil management options is to be employed should involve an assessment as to the projected needs of the local aggregate industry. As the report indicates the economic implications (advantages and disadvantages) of integrating the excavated rock into the areas market first must be defined. Discussion with the aggregate industry to date has evidenced some interest. This interest,

9 January 1974

however, is qualified with the realization that the moled (mined) rock has a restricted reuse potential and thus a specific and quantifiable economic value.

#### APPENDIX E

The sign (positive or negative) conventions used in relation to the Human Activity Dimension listed in Table E-II-5, were specifically constructed so that impact directions were properly accounted for when ascribing any changes in system elements. See page E-II-23. By assigning a positive value to immigration and a negative value to emigration, any negative change attributable to a system element will automatically result in a reversal of the sign convention. Hence the population impact in the C Matrix characterizes increased population density as a negative impact and conversely emigration as a beneficial impact. Therefore, the resultant changes do, in fact, reflect the same type of impact relationship supported by the Department of Interior.

#### APPENDIX G

The concept of regional parks was assessed within the context of Congressional intent expressed in Public Law 92-500, Section 201(f), which seeks to encourage "waste treatment management which combines open space and recreational considerations with such management." Naturally, the size, location and type (Resource or Activity-Oriented) of park would be based on the site's natural environment. The advantage of incorporating such parks into the perimeter of the Land Treatment sites was based on the potential for using some portion of the treated, high quality water to maintain artificial lakes and supplement local stream flows. This would enhance the range of water and land related recreational and fishing opportunities available to the residents in the area. The commitment of these lands to public use, however, must be acceptable to the residents and governmental units in the affected area. It is anticipated that the socio-institutional considerations suggested for the land treatment system would be equally applicable. This would involve the incorporation of the proposal into local land-use plans and the provision for annual payments to reimburse local governmental and service units that rely on property taxes for their revenue (See Appendix G, Section VIII-23). The implication of the current energy situation and its effects on the time-distance travel relationship for recreational pursuits can affect the synergistic value of these parks. Even so, it should be noted that the population of the counties surrounding the central city is sufficiently large to justify such considerations. Solutions responsive to the concern over odor and aerosol concentrations are discussed in Appendix G, page IV-10. The potential for infrequent odors from the storage lagoons can be negated



9 January 1974

by the use of mechanical aerators, prior to the time for the spring turnover. The problem of wind blown aerosol was overcome by placement of the spray bar and orifice control of the droplet size. Irrigation rigs similar in design features are currently under study in the demonstration program being conducted by the U. S. Environmental Protection Agency at Muskegon, Michigan. As to the level of development envisioned for the regional parks, the figures cited in your letter certainly represent a more optimum use pattern. The figures cited in the report were meant to indicate a benchmark for land zoning, exclusive of water services and physical facilities. The intent or intensity of development are dependent upon too many site and design considerations to specify at this level of the study.

The comments on the concept of Satellite Cities are appreciated. We concur that, insofar as possible, these cities should not be located on high quality agricultural lands. Unfortunately though, urbanization of these lands are already occurring in many of the counties surrounding the metropolitan Chicago area. It is this type of land use conversion that is the basis for concern expressed in the letter from the Illinois Cooperative Extension Service, College of Agriculture. See Annex A, Page 9 of Appendix G.

#### ANNEX B - RESOURCE DEVELOPMENT PLAN

The user-day potential of the recreational corridors was not predicated on any rapid increase in leisure time. Instead the assessment was based on a high-intensity level for both peak and non-peak days during the six-month use season. Admittedly, the weekend useage will continue to be heavier than the week-day use. Nevertheless, the fact that these recreational sites will be co-located immediately adjacent to highly-concentrated residential areas will result in extensive daily as well as weekend use. Most of the park-type developments will have a significant population base within a five-minute travel zone. Therefore, the visitation cited in the report reflects an extensive family use and high rates of turnover during the weekday. It is anticipated that these types of stream-side developments would be integrated into the recreational and park programs of the communities or county.

#### Summary Report

The Section, Current Plans and Constraints has been revised to include appropriate references to Public Law 89-761. The return regimen of treated effluent used in the design of the final alternatives reflects the current pattern of discharge into Lake Michigan, as approved by the U. S. Environmental Protection Agency.



NCCPD  
Ms. Madonna F. McGrath

9 January 1974

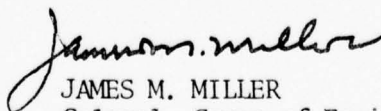
Collection and control of surface runoff could adversely affect any wetlands in the study area unless steps are taken to insure their maintenance. This could involve the reuse of the treated water to artificially supplement the water regimen in the wetlands. These wildlife and eco-unique lands would be preserved as part of the recreational-environmental corridors recommended for development within the floodplain.

The collection and conveyance systems could have significant beneficial impact on habitat if the residents so desire. As discussed in the Summary Report, Section VI-4 and Appendix G, access to both system components can be limited. In this way development could be constrained in relation to the land's physical potential and/or specific land-use objectives and regional growth patterns. Again, the rock and spoil aspects associated with these two system components is recognized as a critical matter.

In evaluating various multiple-use considerations, the potential for enhancing fishery production and/or increasing public fishing opportunities were assessed. None however, involved lagoons containing raw, untreated wastes. One alternative involved the use of the high quality effluent discharged from the treatment plants. In that case the treated effluent was used to maintain a continuous through-flow in fishing impoundments that would be constructed adjacent to the plants. An alternative to this involved the use of the storage lagoon in the land treatment process. The effluent in the storage lagoons having already received the equivalent of primary treatment could, with additional aeration, prove suitable for fish propagation. Admittedly however, the dilution effects of the stormwater runoff on the toxicity and chemical constituency would have to be evaluated. A third alternative could involve the stormwater retention basins used to control surface runoff in the rural and some parts of the suburban areas. In this case the chemical and nutrient loadings of the permanent pool would approximate the same constituent levels found in the streams in the outer portions of the study area. The water quality of these streams is presently adequate enough to support a variety of fish species.

In closing, I wish to express my appreciation for the assistance which various agencies within the Department of Interior have provided during the course of the study. The Department's willingness to provide further technical assistance should prove invaluable as the various governmental units move to improve their wastewater management system.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

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Post Office Box 678, Champaign, Illinois 61820

October 26, 1973

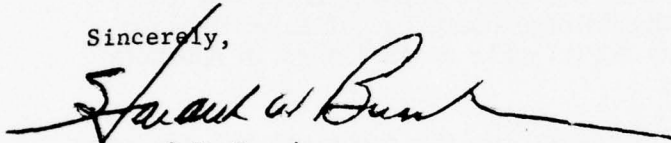
James M. Miller, Colonel  
Corps of Engineers  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Col. Miller:

The Summary Report and with its appendices of the Waste Water Management Study have been reviewed. We have no suggestions or comments to offer at this time.

It was most interesting and informative for us to be involved in your study. Congratulations upon completion of an excellent report on a subject we all recognize as extremely difficult.

Sincerely,



Howard W. Busch  
State Conservationist

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Blank*

I-II-21





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

5 December 1973

Mr. Howard W. Busch  
State Conservationist  
Soil Conservation Service  
Department of Agriculture  
P. O. Box 678  
Champaign, Illinois 61820

Dear Mr. Busch:

This is to acknowledge your letter on our draft report concerning the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, along with the reply, will be published in Appendix I, Comments.

I would like to express my personal thanks for the technical and advisory assistance received from you and members of your staff during the course of this planning effort. The magnitude of this study, together with its complexities, as well as a necessity to complete it within a short time frame, has imposed tremendous manpower commitments on the part of all concerned. Your support was most appreciated.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller", is positioned above the typed name.

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

**UNITED STATES DEPARTMENT OF AGRICULTURE**  
**SOIL CONSERVATION SERVICE**

Atkinson Square-West, 5610 Crawfordsville Road, Indianapolis, Ind. 46224

November 14, 1973

James M. Miller  
Colonel, Corps of Engineers  
District Engineer  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Col. Miller:

The opportunity to review the "Wastewater Management Study of Chicago-South End of Lake Michigan" is appreciated. Sections III, IV, and V in the summary report are excellent summaries of the plan formulation process which includes study objectives and alternatives to consider. The logic expressed, in analyzing alternatives and in arriving at the five final alternatives for selection, is easy to follow and well written.

The following comments are suggested for your consideration:

A map display, similar to figure VII-1 in appendix C, following page VI-5 in the summary report locating the existing sewage treatment plants would be helpful information to allow the reader full appreciation of their significance to site location.

The land treatment sites in Indiana for alternatives IV and V do not match the map location shown in appendix C. A brief sentence noting the reason for this location would be helpful.

Is alternative I a viable plan when it does not meet the NDCP standards of P.L. 92-500? The summary recognizes that additional costs to meet the goals of P.L. 92-500 will be necessary under this alternative primarily for treatment and reuse of storm water; however those additional costs should be included in table X-1 in the summary report so that the decision makers can have more realistic long-range cost comparisons.

The land areas needed for "sludge management" outside the study area should be identified on the map displays associated with alternatives I, II and III in the summary report. The only references found to acreage estimates are in table VII-3 and section XI in the summary report.





The description of the study area and its correlation with figure G-I-1 in appendix G does not present a clear picture of which counties are included. A list of the counties and their populations would help in describing the study area.

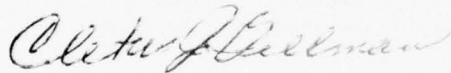
Storage capacities of 2.5 and 2.85 inches of storm water are shown on pages III-2 and III-6 in appendix G for the urban and suburban areas, but the storage capacities for the rural areas are not given. Although grass waterways are a sound conservation practice, it would appear that larger conveyance systems such as open channels would be necessary to convey storm runoff to the detention sites.

Section VII of appendix G needs quantification. Crop production budgets should be run to show the effects that land system would have on increasing net income by increasing average yields and decreasing fertilizer costs.

The discussion on "Agriculture Productivity" on page VII-3 in appendix G appears to disregard the Office of Business of Economics - Economic Research Service (OBERS) projections which have been developed as a means of indicating future food and fiber demands. This data could serve as a basis to evaluate the impacts of various alternatives on agriculture production.

I hope these suggestions will be helpful to you. If I can be of further assistance, please contact me.

Sincerely,



Cletus J. Gillman  
State Conservationist



NCCPD

DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

6 December 1973

Mr. Cletus J. Gillman  
State Conservationist  
Soil Conservation Service  
U. S. Department of Agriculture  
Atkinson Square - West  
5610 Crawfordsville Road  
Indianapolis, Indiana 46224

Dear Mr. Gillman:

This is to acknowledge your comments on our draft report regarding the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, along with this reply, will be published in Appendix I, Comments. The responses follow the same sequence as the comments presented in your letter.

In response to your suggestion, the text in Section VI of the Summary Report will be revised to include a reference to the map for Alternative I. This map, similar to the one in Appendix C, displays the current goal for regionalization. This should help the reader appreciate the significance of plant abandonment, a factor of system design inherent in all alternatives.

The boundaries of the land treatment sites for Alternatives IV and V shown in the Summary Report are comparable to those depicted on a map in Appendix C. The cross-hatching of the Appendix C map was used to differentiate between 1990 and 2020 needs and is so indicated in the legend. However, to avoid any misinterpretation, the 2020 needs were shown in the Summary Report and supplementary tabulations were used to differentiate the time phasing in acreage needs.

Alternative I is a viable plan in two ways. First it provides a reference base with which to compare and evaluate alternative wastewater treatment systems designed to achieve the 1985 national water quality goal (PL 92-500) of eliminating the discharge of pollutants into the area streams. This was a study objective specifically stated in the Congressional resolutions authorizing this investigation. Significantly, the plan also provides an intermediate benchmark if the ultimate NDCP

NCCPD  
Mr. Cletus J. Gillman

6 December 1973

water quality goal is to be achieved in stages. The cost differential implicit in achieving such an intermediate water quality goal first, is identified in the report. This aspect is just part of the various trade-offs which may have to be assessed over time.

Maps depicting the land areas needed outside of the study area and used for the disposal of sludge from the various alternatives have been included in response to your suggestion. The maps will be inserted in Section VI of the Summary Report with appropriate references added to the discussion of sludge management as a functional component of system design.

The description of the study area presented in the Summary Report has been expanded to include a listing of the counties and their 1970 population base. As indicated, this should help the reader better understand the social and political make-up of both the study and the adjacent outlining areas.

Storage capacity of 2.5 inches of stormwater was required and designed on a modular basis for the rural areas. Your concern that larger conveyance systems, such as open channels instead of grass waterways, may ultimately be needed, will have to be evaluated at such time as plans for such improvements are formulated. Pertinent to this evaluation would be the farmer's need for surface drainage and the objectives of the counties' land-use plans.

Section VII of Appendix G includes a reference to a crop production budget which was assessed but included in the Appendix B Annex. Inclusion of this data in Appendix B, rather than Appendix G, was an arbitrary decision equating agricultural production and management to system design, rather than net income discussions.

The discussion on agricultural production in Appendix G was meant to be illustrative in nature, rather than design specific. The objective of this part of the text was meant to emphasize the range of implications involved in integrating agricultural production with wastewater management objectives. Whatever implications this could have on future crop demands is, of course, important. It must be recognized that if agricultural production is to be intensively incorporated into the land treatment process, crop selectivity may be a constraint until new hybrids are developed. What implications this could have on future food and fiber markets is one of the points to be considered. Significantly though, the concept has

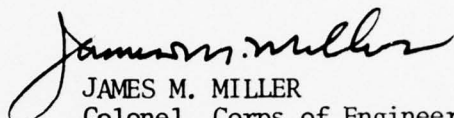
NCCPD

6 December 1973

Mr. Cletus J. Gillman

added potential to halt the on-going conversion of productive agricultural lands into urban-related uses. The transition from rural to urban uses is presently being experienced in many of the counties surrounding the Chicago Metropolitan area.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



FEDERAL POWER COMMISSION  
REGIONAL OFFICE  
United States Custom House  
610 S. Canal Street, Room 1051  
Chicago, Illinois 60607

November 15, 1973

Colonel James M. Miller  
Chicago District Engineer  
Corps of Engineers  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

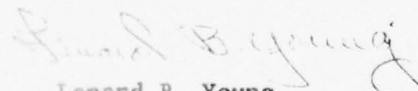
Dear Colonel Miller:

We have reviewed the Summary and eight supportive appendices for the waste water management study for the Chicago-South End of Lake Michigan (C-SELM) area furnished us with your letter of September 24, 1973. The following comments will supplement those furnished in our letters of September 15, 1972.

In view of the current and continuing shortages of natural gas and petroleum products it may be that the incineration and drying process will have to be accomplished with electrical energy derived from coal and/or nuclear fuel rather than natural gas as indicated in the report. With respect to the increased electrical load imposed by the treatment process (pumping, etc.) this can be served as of the forecast years assuming successful development of the "breeder" reactor; fusion power; adequate development of coal resources; and successful research in more efficient generation processes and new sources of electrical energy. The generation facilities required for the additional energy will be made available if adequate notice is given of the impending additional loads to allow sufficient lead time for financing and construction.

These comments express the views of this office and do not necessarily represent the views of the Commission itself.

Sincerely yours,



Lenard B. Young  
Regional Engineer

I-II-29

I-II-28  
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DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

3 December 1973

Mr. Lenard B. Young  
Regional Engineer  
Federal Power Commission  
United States Custom House  
601 South Canal Street, Room 1051  
Chicago, Illinois 60607

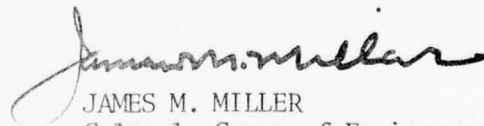
Dear Mr. Young:

This is in response to your letter on our draft report concerning the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, together with this reply will be published in Appendix I, Comments.

The use of electrical rather than other types of energy to accomplish the incineration and drying processes included in the Physical-Chemical and Advanced Biological treatment processes may well prove to be a realistic alternative. The increased energy loads imposed by the system designs have been a concern of both the utilities and this office. Moreover, as you note, there is a paramount need to provide adequate notice of such demands in order to insure the availability of the additional energy when required. It may also be incumbent upon the States and local governmental agencies to work closely with the utilities, providing the necessary support for the financing and siting of the power plants.

In closing, I wish to express my personal appreciation for the technical and review assistance provided by your office during the course of this study. Without such input, the resource implications and synergistic potential for power could not have been so well defined.

Sincerely yours,

  
JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
REGION 5  
18209 DIXIE HIGHWAY  
HOMewood, ILLINOIS 60430  
November 6, 1973

IN REPLY REFER TO: 5-00.3

Colonel James M. Miller  
Department of the Army  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Sir:

We have received the Chicago - South End of Lake Michigan Wastewater Management Study furnished with your September 24, 1973 letter. We have reviewed the study and discussed it with our division offices in Springfield, Illinois and Indianapolis, Indiana. Official FHWA comments will be made by the division offices after they have discussed the study with their respective State highway departments.

We commend you for a very comprehensive study and express our appreciation for the opportunity of reviewing and commenting on this study.

Sincerely yours,

G. D. Love  
Regional Administrator

By: *E. P. Manion*  
E. P. Manion, Director  
Office of Bridge

I-II-31



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

3 December 1973

Mr. G. D. Love  
Regional Administrator  
U. S. Department of Transportation  
Federal Highway Administration, Region 5  
18209 Dixie Highway  
Homewood, Illinois 60430

Dear Mr. Love:

This is in reply to your letter on our draft report relating to the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter together with this reply will be published in Appendix I, Comments.

The official FHWA comments which are to be provided by the Division Offices will be reproduced and bound as part of our report. Your comment as to the comprehensiveness of the study as well as the participation of your agency in the review of our findings are appreciated.

Sincerely yours,

A handwritten signature in cursive script that reads "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer





U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
REGION 5

Illinois Division  
P.O. Box 3307  
3085 East Stevenson Drive  
Springfield, Illinois 62708

IN REPLY REFER TO: 5-11.5

October 15, 1973

James M. Miller  
Colonel, Corps of Engineers  
District Engineer  
Department of the Army  
Chicago District Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

Subject: Wastewater Management Study  
Chicago-SELM Region

Some aspects of the C-SELM study will affect transportation planning and transportation systems operation during the later stages of implementation. Since the function of the Federal Highway Administration is to assist the highway agencies in their programs for highway planning and improvement, we would not be directly affected by C-SELM plan implementation. However, the Illinois Department of Transportation would be directly affected by C-SELM implementation programs and we are forwarding the study material to them for their consideration.

We are concerned about the assumption that all storm water, or at least the first  $2\frac{1}{2}$  inches of rainfall, needs treatment. The assumption does not appear to be supported by other comments in the study, such as sections A-VII-1 and A-VII-10, where it is observed that more than 50% of all pollution of the Waterway results from combined sewer overflow. The notation that only  $1\frac{1}{2}$  to 2 times the dry weather flow will result in combined sewer overflow further detracts from the assumption of necessity for treatment of all storm water. A more obvious conclusion is that the existing sewer systems need to be separated, and that by so doing the major cause of water pollution will be eliminated. This aspect of future implementation appears to be in need of further exploration, first to support the need for treatment of substantially all storm water, and second to ensure that prototypes developed for evaluation include a means to gauge the pollution effect of storm water runoff.

Comments from the Illinois Department of Transportation and from the Chicago Area Transportation Study should be directly solicited if such has not been done. Those agencies are charged with preparation of transportation studies, and their input could be very valuable in spotting problems in the C-SELM study and implementation stages.

Thank you for the opportunity to review the C-SELM study for wastewater management.

Sincerely yours,

Jay W. Miller  
Division Engineer

By

*Israel A. Wood*

Staff Specialist for Environment



**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

4 December 1973

Mr. Jay W. Miller  
Division Engineer  
U. S. Department of Transportation  
Federal Highway Administration, Region 5  
Illinois Division  
P.O. Box 3307  
Springfield, Illinois 62708

Dear Mr. Miller:

This is in reply to your letter on the draft report for the wastewater management study of the Chicago-South End of Lake Michigan area. Your letter, together with this reply, will be published in Appendix I, Comments.

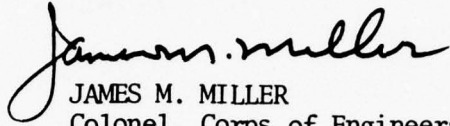
Your concern about the necessity to capture and treat stormwater runoff is appreciated. It should be pointed out, however, that control of the first 2.5 inches of runoff is relevant to the achievement of the NDCP water quality goal as defined for purposes of this study. This conclusion was based on data from a study of the constituent loading contained in discharge from separately constructed stormwater sewers. The discussion pertinent to this matter is contained in Appendix G, Section II, Stormwater Runoff. The material in Appendix A to which you refer, is pertinent to the combined sewered area of the Metropolitan Sanitary District of Greater Chicago (MSDGC). The area was the subject of an extensive study by State and local governmental agencies in an effort to select an optimum plan of improvement responsive to the dual needs of flood and pollution control. The findings served as a prototype which we used to provide for the collection and conveyance of runoff in existing combined sewered areas. The MSDGC study, as well as this, demonstrated that separation of the sewers proved to be more costly once it was determined that the pollutant loads contained in stormwater runoff were severe enough to be considered a source of pollution. In our study runoff retention is designed to prevent a contravening of the NDCP water quality level in streams where the seven-day, 10-year low-flow is essentially zero, or the effluent discharge from existing treatment plants. This base flow condition is typical of the stream-flow characteristic in the study area.

NCCPD  
Mr. Jay W. Miller

4 December 1973

Comments were solicited from the State of Illinois, but to date, none have been forthcoming. When and if such comments are received, they will be made available to all interested parties.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



UNITED STATES DEPARTMENT OF AGRICULTURE  
FARMERS HOME ADMINISTRATION  
P. O. Box 3480  
Champaign, Illinois 61820

October 30, 1973

Colonel James M. Miller  
District Engineer  
Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

.Dear Colonel Miller:

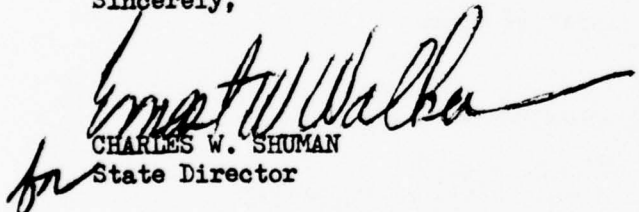
Subject: Wastewater Management Study  
Chicago-South End of Lake Michigan

Thank you for forwarding a copy of the subject study for our review and comments. You are to be complimented on the thoroughness with which alternative wastewater management systems are discussed.

As you know the mission of the Farmers Home Administration is providing supervised credit to rural individuals and groups. Therefore, we seldom have occasion to work in the Chicago metropolitan area and do not have the expertise in this office to offer any specific comments or recommendations on the above captioned study.

We hope that your report will lead to implementation of a wastewater management system that will meet Federal standards and be acceptable to most of the people in the area.

Sincerely,

  
CHARLES W. SHUMAN  
State Director



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

5 December 1973

Mr. Charles W. Shuman  
State Director  
Farmers Home Administration  
U. S. Department of Agriculture  
P. O. Box 3480  
Champaign, Illinois 61820

Dear Mr. Shuman:

This is to acknowledge receipt of your letter concerning the draft report on the wastewater management study conducted for the Chicago-South End of Lake Michigan area. Your letter, together with this reply, will be bound in Appendix I, Comments.

The report was furnished your office in the event FHA has a need to refer to the report. The implications to the agricultural communities are complex and may prove of interest to your organization, should local communities elect to use comparable forms of wastewater treatment.

Your complimentary remarks on the thoroughness of the report are appreciated.

Sincerely yours,

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

SECTION III

COMMENTS

FROM

STATE AND REGIONAL CLEARINGHOUSE AGENCIES



## STREAM POLLUTION CONTROL BOARD

1330 West Michigan Street  
633-5467

December 11, 1973

James M. Miller, Colonel  
Corps of Engineers  
District Engineer  
Department of the Army  
Chicago District  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

Re: Wastewater Management  
Study for the Chicago -  
South End of Lake  
Michigan (C-SELM) Area

This is to advise that this office has reviewed the subject study. Comments and conclusions are offered herewith. It is our understanding that these comments can be incorporated into Appendix I - Comments of the Chicago District Report - at the NCD Engineer Office.

In Alternative I, the quality potential for effluent output has been underrated and the removal of BOD, suspended solids and nitrogen listed are insufficient to meet water quality standards for Indiana waters. You apparently used Illinois standards which allow for lower quality effluent than Indiana. Dischargers in the Indiana portion of the study area will require effluent characteristics consistent with conventional advanced waste treatment technology. This will generally require 5 mg/l of BOD and suspended solids and ammonia - nitrogen removal at several large plants.

Because of the lower cost for financial and energy needs, Alternative I appears to coincide with the reality of the times. The relatively low level of controversy is also a positive factor. The establishment of high quality water uses for recreation and fisheries population cannot be justified based on the cost of Alternative II through V and the energy requirements. This should have been pointed out in the report.

Alternative II is unacceptable because of high nitrogen oxide emissions to the atmosphere produced in the incineration process. These emissions do not meet air emission standards and technology is not yet available which would solve the problem without disrupting many of the processes involved in the physical-chemical system.



The relatively high energy and financial requirements and the excessive displacement of people have a negative effect on the present feasibility of this alternative.

Alternative III possesses an excellent level of treatment technology, but due to the high need requirements for energy and financial resources and the large number of people displaced, this alternative would seem to be acceptable for use only in the distant future. Again one must justify the cost and energy drain on such a proposal for the benefits gained.

Alternatives IV and V are unsatisfactory because the land treatment technology has not been previously tested on the scale proposed. We have in past comments questioned the technical feasibility of applying over 130 inches per year of wastewater on the land, questioned the effect of heavy metals on crops, questioned the removal of nitrogen when soil temperatures are below 50°F, questioned the ability of the projected removals of BOD, and questioned the control of nuisance conditions such as odors. We have not received acceptable answers to these questions in the report or at any of the public hearings. We have also questioned the feasibility of the no cultivate - two crop per year farming practice proposed. Research must be done to prove that this can in fact be done. Agricultural experts testified at the public hearing that this was an unproven farming practice particularly under the water application rates proposed. Throughout the public hearing process the Corps has steadfastly inferred that all the proposals are proven and can be achieved. The Board believes that a more cautious approach by the Corps is warranted.

The State of Indiana has legislation preventing the interstate transportation of wastewater for purposes of land disposal treatment. This alone would exclude utilization of Alternative IV.

The high level of controversy concerning land treatment technology cannot be ignored. The large number of people displaced, the imposed change of life-style and loss of home rule, the need for utilization of rural solutions to solve urban problems and the tremendous energy needs and costs all present negative potential for adoption of either Alternative IV or V.

It is the contention of this agency that the complete treatment of storm water and its redistribution as proposed in Alternatives II, III, IV and V is unnecessary to achieve the desired water quality conditions in Indiana waters and that the costs and energy requirements needed to institute the measure cannot be justified.

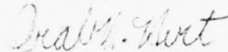
James M. Miller, Colonel

-3-

December 11, 1973

This office concludes that since the 1985 "No Discharge of Critical Pollutants" is a goal of the law rather than a requirement, and the Act allows improvement of water quality conditions for restricted use waters, and cost-effective-oriented regionalization to satisfy PL 92-500 needs can be realistically met by utilizing Alternative I for present planning purposes with the intention of applying Alternative III technology in the distant future.

Very truly yours,



Oral H. Hert  
Technical Secretary

WJFeller/dsc

cc: Hon. Walt Roorda  
Ralph Pickard  
William Watt



**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

8 January 1974

Mr. Oral H. Hert  
Technical Secretary  
Stream Pollution Control Board  
State of Indiana  
1330 West Michigan Street  
Indianapolis, Indiana 46206

Dear Mr. Hert:

This is in reply to your comments regarding the draft report on the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, along with this reply, will be published in Appendix I, Comments. The responses are presented in the same order as the comments contained in your letter.

The effluent standard used in the design of the treatment plants for Alternative I (the then-current standards) was based on the constituents and control levels cited by your predecessor, Mr. Perry Miller, as being of major concern. At that time Indiana had no effluent standards in effect, though a range of water quality guidelines were under consideration. Since then, Public Law 92-500 has focused increased attention on the use of effluent standards. According to the U. S. Environmental Protection Agency it now appears that Indiana is requiring more consideration of those proposed water quality standards in the (effluent) design of local treatment plants. This, in turn, has caused the effluent standards and practices in Indiana to change from secondary treatment, disinfection and advanced waste treatment for phosphorus removal in 1971 to the current criteria addressed in your letter.

In response to your concern regarding the validity of the NDCP water quality goal, I can only note that this is a matter relating to established national goals and outside the purview of this office. This is one of the subjects that will be addressed by the National Commission on Water Quality. The Commission, established by PL 92-500, is investigating policies, issues and programs that could affect our national water quality goals. Hopefully, the findings of this report will contribute to such an assessment.

8 January 1974

The viewpoints of your agency concerning the desirable or undesirable aspects of each alternative and planning options, are appreciated. These comments should contribute to the public understanding of the problems and decisions that must be faced in furthering the national efforts to clean-up our streams. However, I would like to take this opportunity clarify a few of the concerns you have itemized. An extensive amount of supportive data has been presented in the design appendices. Included are technical details responsive to your specific questions; the answers to which are summarized below.

The land treatment system is designed to utilize the biosystem of both the soil and cover crops and uses the same principles employed in design of the farmer's present fertility program and cropping practices. For example, the amount and rate of wastewater application have been selected only after consideration of at least six basic control parameters. These parameters included: (1) the nutrient requirements of the crops under consideration; (2) the four basic mechanisms operating within the soil, namely, filtration, plant uptake, cation exchange and fixation and volatilization; (3) an irrigation schedule to facilitate normal field operations including application of soil amendments and agricultural chemicals; (4) the nutrient recycling capability of the crop residue; (5) climatic conditions that involve such considerations as temperature (growing-degree days for calendarization and microorganism activity within the soil column), rainfall patterns and storm events including the most intense storm and wettest year of record; and (6) the infiltration, percolation and permeability factors reflective of the soil types used. These factors, together with the underlying drainage system insure the maintenance of a suitable environment for the crop roots and soil's biosystems. The feasibility of a two-crop system has been proven and is being practiced in various parts of the midwest. So is the no-till concept of farming. In fact, consideration of such type of tillage was undertaken at the suggestion of the U. S. Department of Agriculture. Nevertheless, the system design was evaluated using the more conventional form of tillage as well. Actually, the form of tillage practiced by the participating farmer should not impact on the effectiveness of the land treatment system.

This office has supported the need for continued research. This has been reiterated at our public meetings and stated in our informational brochures. We have continuously stressed that while sufficient scientific knowledge



8 January 1974

exists for planning and engineering purposes, additional technical data are needed before final designs are implemented for this as well as the other two technologies. Specific examples of such data needs are cited in Section XI of Appendix G.

The legislation enacted by the State of Indiana has been recognized and is discussed in the report. However, it is our understanding that the legislation to which you refer has a caveat that the interstate transfer of wastewater and treated effluent and implementation of a land disposal system is prohibited unless State and County approval is obtained. This office supports this concept. As stated in the report we feel that implementation of such a system must be contingent upon public acceptance and compliance with State and local land-use objectives.

The strong social and political opposition to Alternative IV is a factor which must certainly be recognized. This, together with the remaining factors you cite, are presented in the report and discussed in some detail. The very fact that these and still other related impacts are identified, tends to underscore the comprehensiveness of the study. Advocacy of any particular technology or areawide system was not the intent of the study nor the responsibility of this office.

The need for controlling storm water runoff is directly dependent upon the water quality goal under consideration. The then-current water quality objectives are characterized by the treatment standards and water quality guidelines of the referenced plan, Alternative I. As such, there are no provisions included for the capture and treatment of storm water runoff except where combined sewer systems exist. On the other hand, the NDCP alternatives are designed to eliminate the discharge of pollutants in the waterways from both point and non-point sources. The design criterion used to determine the amount of storm water runoff to be captured and treated was based on a study of constituent loadings from separate stormwater sewers. See Section II of Appendix G. The results of preliminary routings indicated that the first 2.5 to 2.8 inches of runoff would contain sufficient contaminants to contravene the in-stream quality to a level less than that defined by the NDCP water quality goal. The analysis was based on the current practice of using the seven-day, 10-year low flow as the base equivalent of the natural stream flow. For most streams in the study area this base flow approximates zero flow or, at best, the dry weather discharge from existing sewage treatment plants. Since there was

NCCPD  
Mr. Oral H. Hert

8 January 1974

no national policy concerning the control of non-point sources of pollution, the costs as well as the social, environmental and resource implications of the storm water system components were evaluated on an incremental basis. In this way the implications associated with the control of non-point sources of pollution can be independently assessed.

Sincerely yours,

A handwritten signature in cursive script that reads "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

STATE OF INDIANA



DEPARTMENT OF NATURAL RESOURCES  
GEOLOGICAL SURVEY

611 NORTH WALNUT GROVE  
BLOOMINGTON, INDIANA 47401

AREA CODE: 812  
TELEPHONE 337-2862

November 13, 1973

Colonel James M. Miller  
District Engineer  
U. S. Corps of Engineers  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

This letter is in response to your request for comments on the waste-water management study for the Chicago-South End of Lake Michigan area. The attached short review covering those portions of the report (appendices A and E) that deal with geologic conditions in the area was prepared by Mr. John Hill, geologist on the staff of the Indiana Geological Survey. Mr. Hill has been working on the environmental geology of northwestern Indiana and is familiar with the glacial deposits that form the surficial materials in the area south of Lake Michigan.

I also am enclosing a short summary of the physiographic setting for Lake and Porter Counties, and a paragraph about the principal mineral resources of the region. I hope that this information can be useful to you.

Sincerely,

*Maurice E. Biggs*  
Maurice E. Biggs  
Assistant State Geologist

MEB:jar

cc: Mr. William J. Andrews

Attachments

I-III-9

*I-III-8  
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## Appendix A

A-I-1 Whereas it seems likely that the Calumet area was glaciated during the Kansan and Illinoian glacial stages, there is no clear evidence for tills older than Illinoian (and even that evidence is shaky in northwest Indiana). Whether the older deposits were stripped away by glacial erosion or were never emplaced is conjectural, but the implication of this section is that the great thickness of glacial drift in the study area is due to the combined thicknesses of drift from each of the last three glacial stages. In Indiana, at least, most, if not all, of the drift can be attributed to the Wisconsin Stage.

Also, a brief summary of the physiographic sub-units in Indiana would have helped this section. The broad physiographic base provided here does not afford the kind of detail necessary to understand the physiographic and geologic complexity of the area. I believe that a brief discussion of the Calumet Lacustrine Plain, the Valparaiso Morainal Area, and the Kankakee Outwash and Lacustrine Plain is essential background information.

## Appendix E

E-V-29-30 Somewhere in this appendix or perhaps in an earlier section, an inventory of potential industrial minerals should have been compiled. Such an inventory would include the basic rock and sediment types that would most probably be encountered in tunneling operations. Also, an estimate of the volume of excavated material would be helpful in planning for storage and use of the rock and unconsolidated sediments once removed.



Lake and Porter Counties are subdivided into three physiographically and geologically distinct regions: (1) the Calumet Lacustrine Plain, (2) the Valparaiso Morainal Area, and (3) the Kankakee Outwash and Lacustrine Plain. The surficial deposits of these regions, which range in thickness from 40 feet near the Kankakee River to more than 250 feet near Valparaiso, Indiana, are the products, either directly or indirectly, of the Wisconsin Glaciation. The Calumet lake plain is characterized by low-lying, complexly intermixed clay, sand, and silt deposits, mostly of glacial Lake Chicago origin. The Valparaiso Moraine forms high ground in the two counties and is composed of clay-rich to fine sandy till. Sand and fine gravel deposits constitute the bulk of the Kankakee Outwash and Lacustrine Plain, this area being the low-lying outwash and flood plain for the glacially derived rivers as well as for the present Kankakee River.

The two-county area has an abundance of geologic and geologically related resources; some of the most important of which include: (1) groundwater of the Kankakee Outwash and Lacustrine Plain and Valparaiso Morainal Area, (2) sand deposits of glacial Lake Chicago and recent origin, (3) rich soils developed on the Valparaiso Moraine and Kankakee outwash plain, and (4) surface water in the form of streams, rivers, and small lakes. Some of these resources have already been damaged during the course of man's habitation and use, but all can, with proper understanding of the problems and the willingness to act, be saved from further unnecessary degradation.



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

12 December 1974

Mr. Maurice E. Biggs  
Assistant State Geologist  
Department of Natural Resources  
Geological Survey  
611 North Walnut Grove  
Bloomington, Indiana 47401

Dear Mr. Biggs:

This is in reply to your letter on our draft report relating to the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, together with your inclosures, will be published in Appendix I, Comments.

The information pertaining to the physiographic setting for the Lake and Porter Counties and the paragraph about the principle mineral resources of the region are appreciated. This information is being reproduced to assure its availability.

Sincerely yours,

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

# STATE OF INDIANA



## INDIANAPOLIS

STATE BOARD OF HEALTH

Address Reply to:  
Indiana State Board of Health  
1330 West Michigan Street  
Indianapolis, IN 46206

November 8, 1973

Col. James M. Miller  
Corps of Engineers  
Department of the Army  
District Engineer  
Chicago District  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Col. Miller:

Re: Review of Wastewater Management  
Study for the Chicago-South  
End of Lake Michigan (C-SELM)  
Area

This acknowledges receipt of the (C-SELM) wastewater management study intended for review by the Indiana Stream Pollution Control Board.

This office is in the process of reviewing the study, but due to its length and detail, a report cannot be submitted to your agency by the deadline, November 15, 1973. It has been indicated by several local newspapers that the deadline for submission of review comments has been extended indefinitely.

This office will submit its report as soon as possible.

Very truly yours,

Samuel L. Moore, Director  
Division of Water Pollution Control

WJFeller/dsc  
cc: Ralph Pickard  
Oral H. Hert  
Walt Roorda

I-III-13



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD-RL

15 November 1973

Mr. Samuel L. Moore, Director  
Division of Water Pollution Control  
Indiana State Board of Health  
1330 West Michigan Street  
Indianapolis, Indiana 46206

Dear Mr. Moore:

We have received your letter of 8 November 1973 concerning review of the draft report for the Chicago-South End of Lake Michigan (C-SELM) wastewater management planning study.

The closing date for comments to be included in Appendix I - Comments of the Chicago District's final report has not been extended past the announced date of 15 November 1973. However, during the review process by our higher headquarters, there are opportunities when additional comments may be submitted for consideration. I am inclosing a copy of the tentative schedule for submission and review of the C-SELM wastewater management study by our higher headquarters. Comments may be submitted to the Board of Engineers for Rivers and Harbors (BERH) and to the Office of the Chief of Engineers (OCE) during their review of the report.

Both BERH and OCE will welcome comments submitted during their reviews. I strongly recommend that, upon issuance of the North Central Division Engineer's public notice stating the report has been completed and referred to BERH and OCE, you notify both BERH and OCE of your intention to submit late comments. Your written notice should cite the objectives in providing the comments and anticipated results as well as the estimated submission date. The comments should be submitted directly to BERH and OCE with copies furnished to the Chicago District. It would be best if comments were submitted prior to 15 May 1974, which is the tentative date the Chief of Engineers' draft report will be distributed to the Governors of Illinois and Indiana, as well as to concerned Federal agencies, for review and comment. Submittal of comments after 30 June 1974 may not provide sufficient time for distribution and adequate review of comments by the Governors of Illinois and Indiana and the concerned Federal agencies by the 15 August 1974 tentative deadline.

Sincerely yours,

A handwritten signature in cursive script, likely of James M. Maas, is written above the typed name.

JAMES M. MAAS  
Chief, Planning Division

1 Incl  
As stated

I-III-14



10 south riverside plaza

chicago, illinois 60606

(312) 454-0100

## NORTHEASTERN ILLINOIS PLANNING COMMISSION

MATTHEW L. ROCKWELL  
Executive Director

EARLE HARRISON  
President  
JACK FAHL  
Vice President  
IRA J. BUCH  
Secretary  
WALDEMAR RAKON  
Treasurer

November 14, 1973

Col. James M. Miller  
District Engineer  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

In reply  
refer to:  
(60.011)

Dear Colonel Miller:

This refers to your letter of September 24 which transmitted to us the Summary Report and nine appendices, all related to your Chicago-South End of Lake Michigan (C-SELM) Wastewater Management Study. You asked for our comments by no later than November 15.

I first want to compliment the Corps and its consultants for the monumental task just completed. In addition to the sheer volume of research and analysis that was required, you are to be commended for the scope of the coverage and for the pioneer efforts in certain fields.

We have been fortunate in that we have kept abreast of your planning efforts from the beginning. Thus, certain data developed by this Commission were used as the point of departure for your studies. And, members of my staff have participated in certain advisory committee actions. If it had not been for these continuing contacts, the initial exposure to your final report would have been "overwhelming."

We recognize that your work has been only a planning study, and the Corps position is that it hopes the findings will be used by State and local agencies in their own wastewater management studies. Thus, any comments at this time are perhaps in the nature of after-the-fact observations for the record. While some may be critical, I hope you and your associates will accept them as intended to be constructive.

NDCP We believe that too much stress was placed on the "No Discharge of Critical Pollutants" concept. We recognize that you took current effluent standards and established a base. However, we believe that one of the basic goals of PL 92-500, namely: "that discharge of pollutants into

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The Northeastern Illinois Planning Commission was created by the Illinois General Assembly in 1957, a "body politic and corporate," to act as the official planning agency for the six northeastern Illinois counties of Cook, DeKalb, DuPage, Lake, McHenry and Will. It is governed by nineteen appointed Commissioners, a majority of whom are elected public officials. The current members of the Commission are listed on the reverse side.

navigable waters will be eliminated by 1985" is merely an "aspiration." The concept is to be reviewed at a later date as to its feasibility. Thus, by accepting this goal as a basic premise in your study, exceedingly high costs and monumentally distressing solutions were developed.

Treatment Processes The various alternative treatment processes used were praiseworthy, except for land recycling. Up to this time, land recycling, while recognized as being an old concept, has not been proven at a scale anywhere near the size contemplated in the C-SELM area. And, the full range of pollutants found in our effluents and stormwater runoff has not been tested. Given the monumental disruptions that would occur by allocating sizable lands for this process (606,000 acres), and further recognizing the adverse reaction of the people in the designated areas, as expressed at public hearings you held, and further recognizing that some 27,000 people would be physically displaced, we believe that this process is at best premature for this area.

Stormwater Treatment The concept of capturing and treating the first 2.5 to 2.85 inches of stormwater runoff in areas other than where combined sewers are in place is perhaps premature. It is believed that the true adverse impact of stormwater runoff, including surficial flows, cannot be evaluated until basinwide water quality management plans have been completed. Then, by integrating the impact of all pollutants entering a stream under different hydrological conditions, it will be possible to determine what will have to be done to meet established water quality standards. It is not inconceivable that such standards may have to be changed or that designated uses of these streams will have to be revised.

Consolidation of Plants Your various alternatives for treatment of wastes called for sixty-four plants under Alternative I (using conventional biological treatment), thirty-three plants under Alternative II (using the physical-chemical method), seventeen plants under Alternative III (using advanced biological methods), no plants under Alternative IV (using five land treatment sites), and five plants under Alternative V (using a combination of five land treatment and five advanced biological plants). Except for Alternative I, which is essentially based on currently approved regional wastewater plans, the other alternatives called for a massive abandonment of existing facilities and the construction of large and long

interceptor sewers. Your study indicated that bonded indebtedness on existing plants to be abandoned could range up to about \$400 million. This cost was not included in the study because, under Alternative IV, for example, where all plants would be phased out, annual costs to pay off this indebtedness would amount to only four percent of the total annual costs. Also not included was the fixed value of these plants, over and above bonded indebtedness, whose utility and continued practical value would be discarded. Finally, we fear that the construction of these large interceptor sewers would have adverse impacts on land use planning, particularly since access to these sewers would be provided in a lineal pattern along their rights-of-way. Recognizing the importance of sewers in determining growth patterns, we believe that the presence of these new interceptors would contravene the goals and objectives of our Comprehensive General Plan which calls for growth to generally take place along development corridors, where the full range of municipal services, including mass transportation, can be provided at lesser costs.

Water Reuse We believe that the water reuse concepts you developed were imaginative. Ranging from low flow augmentation to the return of treated effluents to Lake Michigan, thus augmenting the current 3,200 cfs Supreme Court limitation, we found these approaches challenging. However, we do not believe that the water supply problem in northeastern Illinois is as critical as might be inferred from your study. The Illinois State Water Survey, in its Circular 102, "A Preliminary Least Cost Study of Future Groundwater Development in Northeastern Illinois," has found the deficiency in all of our six counties to range between 12 MGD in the year 2000, through 48 MGD by 2010, to 147 MGD by the year 2020. Admittedly, these data were based on township areas, assuming the full utilization of available groundwater resources. The inference was that shortages could be made up by the importation of water from wells in other townships, by the development of surface supplies (such as the Kankakee River), and by the reallocation of Lake Michigan water. Recognizing the 3,200 cfs limitation, the inference is that less dilution water would be used by the Metropolitan Sanitary District of Greater Chicago, thus making more water available for consumption.

Energy Taking advantage of recent developments in the national energy picture, we note that all alternatives other than I will require substantial

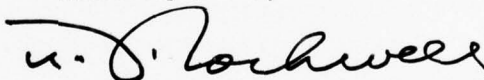
November 14, 1973

increases in electrical power. With a base demand of between 3,200 and 3,600 megawatt hours per day in 1990 and 2020 respectively, under Alternative I, the other alternatives would require increases of between three and sevenfold. Natural gas requirements would also be developed by Alternatives II, III and V, ranging from about 60 to about 170 million cubic feet per day. Given that our critical energy situation is reported to be of long duration, measurable in years, this factor also indicates that a more conservative approach be taken in adopting any new systems.

Institutional I must recognize the problems our Commission has encountered in advocating the regionalization of wastewater systems based on our own plan. These have reflected the desires of local officials to retain control of their own smaller, independent treatment plants. It is believed that the centralized systems envisioned by your Alternatives II through V would involve monumental and insurmountable institutional obstacles.

Despite the negative comments noted above, please let me reassure you that your report contains valuable data which will be useful to us in our own future water resource studies. Certain of your Alternatives represent bench marks which identify and quantify limits toward which we might direct our attention.

Sincerely yours,



Matthew L. Rockwell  
Executive Director

MLR:lm





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

14 December 1973

Mr. Matthew L. Rockwell  
Executive Director  
Northeastern Illinois Planning  
Commission  
10 South Riverside Plaza  
Chicago, Illinois 60606

Dear Mr. Rockwell:

This is in reply to your comments concerning the draft report on the wastewater management study conducted for the Chicago-South End of Lake Michigan area. Your letter, together with this reply will be published in Appendix I, Comments. The following responses are in the same order as the comments presented in your letter.

NDCP Goal. The basic objective of the study was to identify and evaluate wastewater management systems that would be responsive to the NDCP water quality goal. This necessitated that a major portion of the study effort be focused on that concept. As the report indicates the resource expenditures including financial required to achieve this goal, are beyond a level heretofore experienced. Thus, many decisions will have to be made at all levels of government. Of particular concern will be the extent and priority of commitments accorded the environmental goals in relation to other public needs. Such determinations including the feasibility of such goals, however, are beyond the purview of this study and this office. Nevertheless, the findings of this report should prove invaluable as far as providing inputs to this type of determination.

Treatment Processes. Implementation of a land treatment system on a scale contemplated in Alternative IV would generate strong social and political opposition at this stage in time. Unfortunately, there is an underlying concern that the land system would not work as designed, even though the technical and agricultural criteria used in the design have been demonstrated and proven. The same types of concerns, though, apply in a comparable manner to the plant technologies as well and are discussed in Section XI of Appendix G. Ultimately, the state-of-the-art for all three advance treatment technologies should improve as the environmental clean-up continues on a national scale. In fact, the U. S. Environmental Protection Agency presently is financing some of the research aspects

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of a full-scale land treatment system in Michigan. Similarly, research projects on land reclamation and sludge disposal are also in operation throughout the country. Consequently, within the next 3 to 5 years, the options for recycling wastewater and its residual by-products can be better assessed and should become more socially acceptable.

Stormwater Treatment. The concept of capturing and treating stormwater runoff reflects the need to control non-point sources of pollution. The design criterion used to determine the amount of runoff required to be captured and treated was based on a study of constituent loadings from separately sewered, stormwater discharges. See Section II-4 of Appendix G. The results of preliminary routings indicated that the contaminants contained in the first 2.5 to 2.8 inches of runoff would contravene the stream (NDCP equivalent) standard when using the seven-day, 10-year low flow as the base equivalent of the natural stream flow condition. For most streams in the study area this base flow condition approximates zero flow or, at best, the dry weather discharge from existing sewage treatment plants. Admittedly, the level of stormwater treatment could be reduced if the Federal and State Environmental Agencies would accept a less stringent equivalent of base flow conditions. It was for this and other reasons that the costs as well as the social, environmental, and resource implications of the stormwater management system components were evaluated on an incremental basis. In this way the associated implications can be independently assessed. As you point out, it is not inconceivable that the water quality standards or designated uses of the stream may ultimately have to be revised.

Consolidation of Plants. The cost equivalent of outstanding bonded indebtedness was not included in the cost estimates for the individual alternatives. This, as well as certain other cost items, were excluded because of an inability to determine actual costs with any degree of relevancy. See Appendix G, Section IX. Nevertheless, the relative magnitude of the bonded indebtedness was assessed by determining the maximum write-off which could be incurred. This involved the Land Treatment System, Alternative IV. Under that alternative all existing plants would be phased out of operation. The fact that the maximum possible write-off amounted to only some four percent of the alternative's total annual (capital and operational) cost is significant only from a relative cost relationship among all five alternatives.

The importance of the conveyance system in determining growth patterns was assessed. As discussed in Appendix C, the potential of development corridors was evaluated during both the initial and intermediate stages of study. Specifically, various alternatives were used to determine the feasibility and cost effectiveness of employing a collection system that

14 December 1973

physically followed the so-called "Finger-Plan of Development" proposed by your agency. In all cases, the comparative assessment with unrestricted lineal access proved to be the same, too costly. It was concluded that the same objectives of land-use control could be achieved by other means and at lesser cost. Even so, the objectives of your comprehensive general plans are supported and alternatives for achieving these goals are discussed in Section VI-2 of the Summary Report.

Water Reuse. The water balance used in the study was designed to be responsive to a range of needs. These needs included not only projections of municipal and industrial water supply deficiencies, but also certain in-stream recreational and navigational requirements. It was not meant to infer that the potable water supply problem is more serious than you have indicated. Instead, it was intended to focus attention on a range of synergisms including the use-potential of the streams and the need to enhance the aquatic eco-system. Much of the low flows in the major streams are the discharges from the existing treatment plants rather than natural groundwater seepage. Consequently, any consolidation of these plants would adversely effect an already degraded aquatic eco-system and low-flow regimen. Hence, the dual emphasis on the effective use and redistribution of both the treated water and Lake Michigan withdrawals. The net result would be the full utilization of available ground water resources without having to develop and import water supplies from outside the study area.

Energy. The current energy situation has tended to underscore the significance of the electrical and natural gas energy requirements identified in the report. These needs are just one of the many resource impacts which will occur if and when the level of treatment is upgraded and the area's wastewater management system is consolidated. Moreover, as the report indicates the implications of these impacts will vary at the regional, State and national levels and the differences in the causal relationships must be recognized.

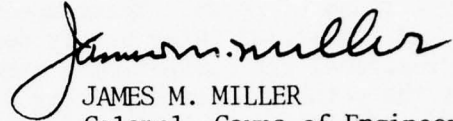
Institutional. Admittedly there are no simple and readily acceptable institutional arrangements with which to implement any areawide type of management approach. The concern for maintaining the integrity of home rule while encouraging regional solutions in order to affect economies and efficient resource use cannot remain the public paradox it has proven to be. Hopefully in time, regionalization will become an accepted planning objective. One of the three institutional approaches outlined in Appendix F emphasizes the local approach and the use of contractual arrangements or consolidation into larger geographical service units. Precedents for the latter concept exist. For example, reconstructed school districts are illustrative of this type of approach. In the final analysis, however, the viability of this or any other solution will depend upon the public's perception of the problem and the extent of legal authority granted by the States.

NCCPD  
Mr. Matthew L. Rockwell

14 December 1973

In closing I wish to express my personal thanks for your kind remarks concerning the scope of coverage, research and analysis provided in the study. As you have recognized, the work is a planning study and hopefully can be used by the State and local agencies in their own wastewater management study efforts.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer





# northwestern indiana regional planning commission

8149 Kennedy Avenue

Highland, Indiana 46322

219-923-1060

312-731-2121

December 17, 1973

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Porter County Surveyor

ROBERT A. PASTRICK, VICE CHAIRMAN  
Mayor, East Chicago

RICHARD COLLINS, SECRETARY  
Mayor, Crown Point

RICHARD DAINES, TREASURER  
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Director of Development and  
Planning, Gary

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Hammond Parks Dept.  
Lake County Councilman

JOHN OAKLEY  
Highland

WILLIAM STAEBLE  
Model Cities Director, Gary

JERRY WILKERSON  
Town Board, Merrillville

NORMAN E. TUFFORD  
Executive Director

Col. James M. Miller  
District Engineer  
Chicago District Corps of Engineers  
219 S. Dearborn  
Chicago, Illinois 60604

Dear Colonel Miller:

Since the inception of the C-SELM Wastewater Management Studies in 1972, the Northwestern Indiana Regional Planning Commission has kept abreast of C-SELM activities through active representation on the C-SELM Steering Committee. In conformance to its information rendering mission, NIRPC has also supplied population, economic and water-sewer utility information to the Corps when requested. Furthermore, upon invitation by the Corps, NIRPC has participated in the workshop sessions dealing with water related recreation planning performed by the Corps to capitalize upon and complement the high quality water resource made possible under No Discharge of Critical Pollutant (NDCP) standards.

The C-SELM studies represent to date what is believed to be the most comprehensive assessment of wastewater treatment operations for the entire Chicago-Northwest Indiana SCA. These studies have brought together information on existing treatment plants, wastewater quantities, and data on industrial wastewater flow previously unavailable. Furthermore, the cost of achieving existing stream quality standards as well as NDCE standards has begun to be assessed. These items of information have been quite useful to NIRPC as well as other planning agencies in the Chicago-Northwest Indiana SCA. Furthermore, the assessment of sacrifices required to achieve NDCE standards, is quite helpful to local officials and interested

I-III-23

\* formerly  
Lake-Porter County Regional Transportation And Planning Commission

Col. James M. Miller  
Page Two  
December 17, 1973

citizens who must begin to make judgments affecting the eventual implementation of programs to achieve these standards.

The physical synergisms which permeate the C-SELM alternatives are significant in that they represent truly multiple purpose - multiple means planning and management, indeed a welcome departure from the single purpose - single means efforts present in much of contemporary water resources management.

As far as Lake and Porter Counties are concerned, the benefits of all the C-SELM proposals are quite clear--cleaner water. Associated with these proposals, however, are costs which are significantly above and beyond what is currently being spent; the explanation being that far greater water quality will be attained. It is encumbant, however, that local elected officials and citizenry be made aware of these costs and that they share fully in the decision as to whether such cost commitments can be made in light of important competing uses for public monies.

While many technical questions have been raised, the land treatment of wastewater as proposed, represents a significant breakthrough in the concept of waste treatment in that it encompasses the utilization of waste products as agricultural resources. While it would be premature to support or oppose the land treatment approach at this time, we do encourage that the technical questions being raised be addressed and that, if necessary, a pilot system be implemented as soon as possible. Furthermore, in light of current and projected resource shortages of all kinds, the land treatment system should be re-evaluated in light of these shortages and in terms of possible benefits through their mitigation.

Insofar as the treatment plant C-SELM alternatives are concerned, the physical chemical (P/C) alternatives would only aggravate an already severe air pollution

Col. James M. Miller  
Page Three  
December 17, 1973

problem; therefore, the P/C alternatives are totally unacceptable in Lake and Porter Counties as currently contemplated. The advanced biological (A/B) systems appear to be an extension of present technology with improvements for phosphorus removal and other forms of complete treatment. We note the large industrial waste flows in the region and suggest some accommodation will have to be made in the waste treatment processes to accept industrial wastes within an A/B treatment framework. Perhaps a separate P/C system for major industrial wastes will be an ultimate solution.

The stormwater management schemes are noted and indeed they appear to represent a frontal attack on both urban and rural elements of stormwater runoff management, items which are usually sidestepped in many water resource planning efforts. If the magnitude of land and other resources needed to fully manage storm runoff appear bothersome, the regional planning and operating agencies must be made cognizant of the magnitude of resources needed to solve the runoff problem. NIRPC offers the suggestion that places like Crown Point and Valparaiso, being among the oldest communities in the region, have combined sewers and, therefore, cannot be classed, for stormwater management purposes, as suburban areas.

Several general points conclude our comments:

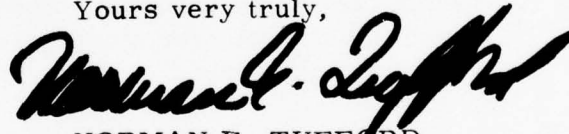
First, it must surely be recognized that much of the present concern in Northwest Indiana arises because of the common belief that the Corps will directly or indirectly implement its C-SELM proposals. While the Corps has repeatedly denied this, they have not comprehensively assessed the implementation strategy (or alternative strategies) so that there be no question as to what lies down the path to full implementation.

Col. James M. Miller  
Page Four  
December 17, 1973

Secondly, the Corps of Engineers, as an agency, is not a stranger to Northwest Indiana. Navigation, shoreline erosion control, and flooding are regional problems in which the Corps has been involved for some time. However, the Corps' implementation record in these problem areas has not been good. Over two decades of involvement in the Little Calumet River has produced very little action. Shoreline erosion control obviously has yet to be accomplished. Navigation is perhaps the only moderately successful Corps enterprise in Northwest Indiana. NIRPC has, and will continue to strongly urge that these more immediate problems (flooding and shoreline erosion control), problems which the Corps has been involved in for some time, be brought to reasonably fruitful solutions before more serious consideration is given to implementation of C-SELM proposals. In a few words, the Corps priorities in Northwest Indiana must be largely redirected to solving the above-mentioned immediate problems yielding the greatest immediate benefit to the citizens of this area.

We have appreciated the opportunity to participate in your efforts, and look forward to continued cooperation on all matters pertaining to Northwest Indiana.

Yours very truly,



NORMAN E. TUFFORD  
Executive Director

NET/cal  
Kenneth Cypra





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

14 January 1974

Mr. Norman E. Tufford  
Executive Director  
Northwestern Indiana Regional  
Planning Commission  
8149 Kennedy Avenue  
Highland, Indiana 46322

Dear Mr. Tufford:

This is in reply to your comments on the draft report presenting the findings of the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter along with this reply will be published in the Appendix I, Comments. The answers are presented in the same chronological order as the comments furnished in your letter.

This office supports your suggestion that the technical questions raised relative to the land treatment system be addressed by pilot studies prior to implementation. We also feel that in a similar manner, specific areas of research also should be directed to the Physical-Chemical as well as the Advanced Biological Treatment Processes. Example of the various concerns that warrant research are cited in Section XI, Appendix G. However, if the level of technological advance experienced during the last ten years is any gage, many of the technical and social-environmental problems associated with the three treatment processes should be resolved within the next decade. In the interim, continued emphasis should be given the recycling of waste as you have indicated.

The potential for accommodating the area's industrial waste flows was evaluated. See Section IV-C-38 of Appendix D. The current trend in industrial recycling as well as the economic implications of on-site, pre-treatment were assessed. Also considered was the comparative economic advantages of on-site versus regional treatment for achieving the NDCP effluent goals. The latter was found to be a function of the treatment technology involved.

The stormwater management program was, as you noted, categorized in relation to land-use classifications; these were defined by population density and industrial or commercial usage. See Section II-3 of Appendix C.

NCCPD  
Mr. Norman E. Tufford

14 January 1974

Exceptions were made in those areas serviced by combined sewers. There, the combined sewer systems were retained but supplemented by improvements similar to those collectors and conveyance (tunnel) systems and reservoirs now proposed for implementation in the combined sewer area of the Metropolitan Sanitary District of Greater Chicago.

This office has recognized and repeatedly responded to the public concern about the study's findings. I do feel, however, that the concern of those residing in Northwestern Indiana does not center on the Corps itself but rather the many implications that the Land treatment system seemingly poses to the agricultural communities. This was the central theme expressed at all of the public meetings held during the intermediate and final stages of the study. The strong social and political opposition displayed by those residing in the outlying area reflects a natural unwillingness to commit the resources of the rural area to solve what is basically an urban problem. In addition, the identified potential for economic gain by any participating farmer must be demonstrated before those in the agricultural communities can accept the fact that their life-style will not be impaired. Residents in the rural area have repeatedly requested that alternatives employing the Land Treatment process be dropped from consideration. Unfortunately they equate the study and evaluation of the Land Treatment Process to the possibility that the urban vote could force its implementation. While we appreciate their concern this office did not have the option to delete the land treatment technology from its assessment since such action would have been contrary to the objectives of the study. As you know, the primary objective was to identify and evaluate alternative wastewater management systems that not only would eliminate the discharge of pollutants into the receiving waters, but also could be incorporated into areawide plans. The plan-formulation procedure and screening criteria used to select those alternatives retained for final study are specifically responsive to these objectives.

The kind comments you have offered on the comprehensiveness of this study are appreciated. I feel that the results will prove useful to all governmental agencies concerned with the management of our resources.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

OFFICES

56 NORTH WILLIAMS STREET  
CRYSTAL LAKE, ILLINOIS 60014  
PHONE (815) 455-0309

ROOM 1031 STATE OFFICE BUILDING  
SPRINGFIELD, ILLINOIS 62706  
PHONE (217) 525-6525



ILLINOIS STATE SENATE

JACK SCHAFFER

STATE SENATOR, 33RD DISTRICT

October 9, 1973

VICE CHAIRMAN OF  
PENSIONS AND PERSONNEL  
COMMITTEE

MEMBER OF COMMITTEES ON:  
LOCAL GOVERNMENT  
PUBLIC HEALTH, WELFARE  
AND CORRECTIONS  
APPROPRIATIONS

MEMBER OTHER COMMISSIONS:  
COUNTY PROBLEMS COMMISSION  
COMMISSION OF THE STATUS OF  
WOMEN  
ADVISORY COMMITTEE TO TOLL  
HIGHWAY AUTHORITY

James M. Miller  
Colonel, Corps of Engineers  
District Engineer  
Chicago District  
219 South Dearborn Street  
Chicago, Il. 60604

Dear Colonel Miller:

Concerning your recent form letter of October 1, 1973 requesting comments on C-SELM, I feel that it is important to once again emphasize, for the record, that public opposition to your plan in the area is still extremely wide spread and many questions remain unanswered in the minds of the residents.

In my own mind, in spite of a sincere effort, I cannot understand your inclusion of the McHenry County area in this plan. I fully realize the need for disposing of waste and sympathize with the "anywhere but near my home" type of attitude you must encounter with every proposal of this type. When I take into consideration the skyrocketing land values in my area, the corresponding dramatic rise in population, and the high fertility of the McHenry County farmland, I still find your present plan inconceivable. I do not wish to present myself as an expert in this field but I wish to assure you of the sincere and honest opposition of the people in my area that will be actively represented by their elected officials.

Sincerely,

A handwritten signature in cursive script that reads "Jack Schaffer".

Jack Schaffer  
State Senator  
33rd District

JS/jd



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

30 November 1973

Honorable Jack Schaffer  
State Senator, 33rd District  
Room 1031, State Office Building  
Springfield, Illinois 62706

Dear Senator Schaffer:

This is in response to your letter on the draft report concerning the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter along with this reply will be published in Appendix I, Comments.

Your concern along with the reaction of the McHenry County residents to the land treatment alternatives has been recognized in the report. However, deletion of those alternatives employing land as a method of treatment would have been contrary to the purpose of the study, which was to identify and evaluate viable and alternative areawide wastewater management systems. As you know, this office has purposely refrained from characterizing an impact and its effect as either beneficial or detrimental. That is the responsibility of those that will be affected, either directly or indirectly. On the other hand, we did conduct an extensive Public Involvement Program in an effort to record the opinions and reactions of those people residing within the study area as well as the outlying counties and communities. Consequently, I feel the perspective of the report does reflect of the full range of implications, including public opinion, associated with the alternatives which were considered.

In closing, one point should be clarified. The design of land treatment process is predicated on current agricultural technology and practices. All scientific data and research findings to date indicate a beneficial compatibility between the two purposes of agricultural production and wastewater treatment. Moreover, such a process can be effectively used to control land use and help maintain a balance between agricultural and urban development. This, of course, is one of the expressed objectives of the McHenry County planners.

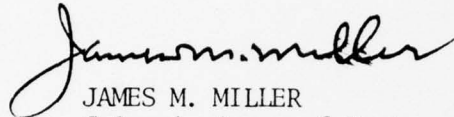


NCCPD  
Honorable Jack Schaffer

30 November 1973

Please accept my appreciation for your continued interest in our studies. I hope that the information contained in the report will prove useful to the people of McHenry County who also must face the same types of concerns, and decisions in the future.

Yours very truly,

A handwritten signature in cursive script, reading "James M. Miller". The signature is written in dark ink and is positioned above the printed name and title.

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

SECTION IV

COMMENTS

FROM

LOCAL GOVERNMENTAL AGENCIES



BART T. LYNAM  
GENERAL SUPERINTENDENT

BOARD OF TRUSTEES

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JOHN W. RUCKES

November 2, 1973

Colonel James M. Miller  
District Engineer  
Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

Subject: Chicago-South End of Lake Michigan Area (C-Selm) Study

The Metropolitan Sanitary District would like to thank the Army Corps of Engineers for the opportunity to submit comments concerning the Chicago-South End of Lake Michigan (C-Selm) Study.

The Metropolitan Sanitary District of Greater Chicago would like to note at this time that the C-Selm Study, while providing alternative wastewater management systems, does not include a recommendation for an optimum wastewater management system. In addition, the report does not delineate a decision-making timetable for the selection of an optimum wastewater management system, nor does the report delineate clearly what authorities will be responsible for the selection of an optimum wastewater management system. As a consequence, the Metropolitan Sanitary District of Greater Chicago is proceeding with its planned capital improvements. These improvements are designed to keep the Metropolitan Sanitary District in compliance with State and Federal Water Quality Standards.

Further comments are as follows:

1. The watershed considered in this study was not studied in its entirety and as a consequence, there are external wastewater loadings on the C-Selm area which are not clearly delineated.
2. The land treatment alternative delineated within the report has an option which permits the recycling of treated effluents to Lake Michigan. These effluents would have a significant dissolved solids pollution load. It is the policy of the Metropolitan Sanitary

I-IV-1

Colonel James M. Miller

-2-

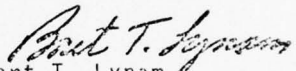
November 2, 1973

District of Greater Chicago to permit no pollution discharges into Lake Michigan. Also, we are reserving comment at this time on the matter of returning any water to Lake Michigan because this matter is now in litigation.

3. Page FA-2 of the report indicates that the Metropolitan Sanitary District of Greater Chicago approves plans for all sewers connecting with the District and issues permits for any discharge which may pollute the waters of the District. It is indicated in the report that these regulatory powers do not apply to municipal corporations of less than 500,000 population. Please be advised that these regulatory powers do not apply to municipal corporations of greater than 500,000 population.

Due to the limited time available for review, the cost factors presented in the study have not been commented on. The District would be appreciative if additional comments on cost verification, technical feasibility, and resource requirements could be submitted at a later date.

Very truly yours,

  
Bart T. Lynam  
General Superintendent





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

17 December 1973

Mr. Bart T. Lynam  
General Superintendent  
Metropolitan Sanitary District  
of Greater Chicago  
100 East Erie Street  
Chicago, Illinois 60611

Dear Mr. Lynam:

This is in response to your comments on the draft report concerning the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, along with this reply, will be published in Appendix I, Comments. The responses are in the same order as the comments presented in your letter.

The study purposely does not include a recommendation nor time table for selecting any one particular wastewater management system. Neither does the report attempt to delineate what authorities should be responsible for the selection of such a system. To have done so would have been contrary to the intent expressed in the Congressional resolutions which served as a basis for this study. Specifically, the resolutions required the identification and evaluation of alternative wastewater management systems that (1) would eliminate the discharge of pollutants into the area's waterways and (2) could be incorporated into areawide planning. Even so, the report does provide a framework that the States and local agencies, such as yours, can use in making such decisions while at the same time meeting the other requirements of Public Law 92-500. In response to your concern on the appropriateness of implementing improvements responsive to current rather than the long-range water quality standards, I can only note that this must be the concern of the appropriate Regional, State and Federal certifying agencies. These designated agencies will have to assess this matter in a different framework of consideration, including budgetary constraints. However, to provide an insight into this concern, the economic implications of not achieving the long-range (1985) national water quality goals immediately, i.e., in one stage,

17 December 1973

were specifically assessed in the report. On the other hand it should be recognized that the design of the NDCP alternatives do incorporate some of the capital improvements currently under consideration by operating entities such as the Metropolitan Sanitary of Greater Chicago (MSDGC). For example, the "Tunnel and Reservoir" plan for the 375 square mile area serviced by the combined sewer network of the MSDGC has been retained as an integral part of all NDCP systems. In addition the method for control and capture of stormwater runoff included in the NDCP alternatives is similar to that now required by your agency's own ordinances.

There are, as you indicated, external wastewater loadings which admittedly have not been delineated nor considered in the report. These specifically concern the pollutant loadings generated outside the boundary of the C-SELM study area; e.g., in that portion of the Des Plaines River watershed located in Wisconsin. Since these loadings are generated outside the study area, the action programs necessary to comply with the same (national) water quality goal would be the responsibility of authorities in those geographical areas. Therefore, the financial and other resource implications as well as the social and environmental impacts associated with those particular improvements were purposely not included in the assessment for the study area.

Various options were assessed during the course of the study, prior to selecting a water balance (use pattern) feasible for design in an area-wide system. During the intermediate study stage the implications of projected needs and the potential in transfer economics between Lake Michigan withdrawals and returns were evaluated. Included in this evaluation were different diversion schemes which could be adopted for various types of synergistic uses or economic considerations. One such option involved an increase in both the withdrawals from Lake Michigan and the current return regimen (See Section VI-14, Appendix C). This option, however, was subsequently dropped from consideration due to a concern over the increase in dissolved solids that would result from the corresponding increase in return flows to Lake Michigan. Therefore, as discussed in Section IX-15 of Appendix C, a water balance reflecting the current "return" regimen to Lake Michigan was used in the design of the final alternatives. As you have recognized, this imposes constraints on the Illinois portion of the study area as opposed to that for the Indiana area.

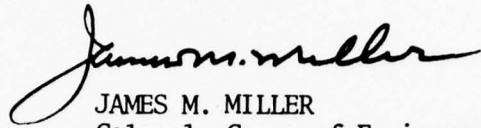
Your comments regarding MSDGC's regulatory power over sewer connections has been noted and correction made by the issuance of an errata sheet to Appendix F. Any additional comments received from your organization at a latter date will be retained in our files for public inspection as well as furnished all parties who evidenced an interest in the report.

NCCPD  
Mr. Bart T. Lynam

17 December 1973

In closing, I wish to express my appreciation for the considerable assistance the MSDGC provided during the course of the study.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

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**GENERAL MANAGER**

and CHIEF ENGINEER, H. WILLIAM BYERS, P.E.

SECRETARY, C. LeRoy Swanson

ATTORNEY, Murray R. Conzelman

*north shore sanitary district*

DAHRINGER ROAD, WAUKEGAN, ILLINOIS 60085 / Telephone: 312/823-8080



November 19, 1973

Department of the Army  
Chicago District, Corps of Engineers  
219 S. Dearborn Street  
Chicago, Illinois 60604

Attn: James M. Miller  
Colonel, Corps of Engineers  
District Engineer

Re: Wastewater Management Study  
C-SELM Summary Report

Gentlemen:

In accordance with your letter dated October 1, 1973, this office has reviewed the draft of the Corp of Engineers C-SELM Summary Report. Our comments are summarized as follows:

Alternate IV, Land Disposal is shown to be the most economical of the alternates meeting the No Discharge of Critical Pollutants (NDCP) goals. In our opinion, however, the following factors indicate that it should not be adopted.

- a. The amount of land required, 300,000 acres in 1990 for irrigation alone is so great that it has generated massive resistance in the communities affected. It appears that many years of litigation would result from any attempt to implement this plan.
- b. The data available are inadequate to permit a reasonable assessment of the long term effects of land disposal on such a massive scale on the soil, groundwater and climate.
- c. The power requirements, about double that required for Advanced Biological or Physical-Chemical treatment, are excessive. This is particularly important due to the present and future power shortages of the nation. The environmental damages done by doubling the power use may offset the improvement to the environment obtained by the higher degree of treatments.

WATER POLLUTION CONTROL FOR THE LAKE MICHIGAN AREA OF LAKE COUNTY, ILLINOIS

I-IV-7

I-IV-6  
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- d. The use of lagoons for sludge digestion prevents the use of sludge gas to supply part of the energy requirements.

Alternate V, a combination of Land Disposal and Advanced Biological Treatment, appears to be the second most economical alternate meeting the NDCP goal. The land disposal features of this alternate, although reduced in scale, are subject to the same objections stated above for Alternate IV.

In our opinion, Alternate III Advance Biological Treatment is the most acceptable of the alternates meeting the NDCP goals. Our opinion is based on the following considerations:

- a. The number of plants and the degree of treatment provided are flexible and may be adjusted to meet local state and national needs.
- b. The estimated difference in cost between this alternate and Alternate V is only about 1 percent, which is not considered significant.
- c. The capital and operating costs of Alternate III may be reduced by combining certain advanced waste treatment facilities with primary or secondary treatment facilities instead of simply adding them as tertiary facilities. Chemical requirements may be reduced by using waste pickle liquor instead of lime. Power and fuel requirements may be reduced by using sludge gas for heating and for generating power.

The draft of the report contains some inconsistencies and questionable assumptions which should be noted. We have not undertaken in the limited time available to evaluate the effect of changing these items. They are as follows:

- a. There appears to be a discrepancy between the land requirements given in Tables VII-3 and XII-1 for Alternates IV and V. The 1990 land requirements for sludge disposal appear to have been omitted from Alternate IV in Table VII-3. If this is correct, the 1990 land requirements for Alternate IV should be increased by about 40,000 acres.
- b. Capital costs are amortized over 50 years, with interest at 5 percent. This is at variance with the USEPA Guidelines, which require computation of cost effectiveness over 10 to 50 years for various facilities with interest at 7 percent.
- c. In the report it is assumed that land for spray irrigation would be leased. The capital costs of Alternates IV and V would be greatly increased if it proves necessary to purchase the land.

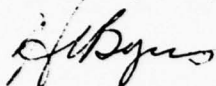
Department of the Army

3.

November 19, 1973

Other major factors which should be critically reviewed include the validity of the NDCP goals, the need to treat stormwater runoff and the degree to which wastewater management should be removed from local control and entrusted to larger agencies.

Yours very truly,



H. W. Byers  
General Manager  
NORTH SHORE SANITARY DISTRICT

HWB/cb

CC: Greeley and Hansen, Chicago



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

21 December 1973

Mr. H. W. Byers  
General Manager  
North Shore Sanitary District  
Dahringer Road  
Waukegan, Illinois 60085

Dear Mr. Byers:

This is in response to your comments on the draft report for the Chicago-South End of Lake Michigan area wastewater management study. Your letter, along with this reply, will be published in Appendix I, Comments.

The viewpoints of your organization concerning both the desirable and undesirable aspects of each alternative and planning options are appreciated. Our assessment has purposely tried to underscore the necessity to consider all recognizable implications in wastewater management planning. Therefore, as you have indicated the economics associated with the various alternatives should not be the sole determinant in the selection of the individual components that comprise a wastewater management system. At the same time, I would like to take this opportunity to clarify a few of the concerns that you have specifically itemized.

Sufficient scientific knowledge, together with engineering and performance data, are available today to make this type of study a meaningful planning framework. I agree, however, that additional design and performance data are required before the wide-scale implementation of the land treatment system as well as the other methods of advanced treatment are initiated. Examples of the type of data required are given in Section XI of Appendix G. Ultimately, it is expected that the state-of-the-art for all three technologies should improve as the environmental clean up continues on a national scale. In fact, the U. S. Environmental Protection Agency is presently financing some of the research aspects of a full-scale land treatment system in Michigan. Hence, it can be expected that within the next 3 to 5 years pertinent design data for this technology will become better defined.

The use of lagoons for sludge digestion would, as you indicate, preclude the generation and use of sludge gas to supplement local gas needs.

21 December 1973

Sludge digestors rely on anaerobic action to stabilize the residual by-products and during this process sludge gas is generated. The potential for generation of this fuel was recognized during the course of study. As the report indicates the amount of gas generated by the Conventional form of Biological Treatment (Alternative I) was sufficient to preclude the need for additional sources. Conversely, the amount generated was insignificant in relation to the fuel requirements of the Advanced Biological treatment technology which employs incineration as part of an internal recycling process. On the other hand, it should be pointed out that the lagoons have an equally if not far greater energy potential for use as cooling ponds which are required for generation of electrical energy.

The respective land requirements for Alternatives IV and V listed in Table VII-3 and Table XII-1 of the Summary Report are correct. The apparent discrepancy arises from the fact that need for the sludge management program associated with the Land Treatment process does not accrue until after 1990. The phasing and implementation program for the various functional components of the individual alternatives is presented in Appendix D, Section III-D. As is shown in Figure D-III-D-8, construction of the sludge management system for the land treatment process does not commence until 1985 (when the rest of the system is on line) and is not completed until 1990. In the interim, the solids are accumulated in the storage lagoons; maintained in the stable state by anerobic digestion. Only when sufficient sludge has accumulated are the dredging operations initiated and the residual by-produce transported to the disposal sites. To avoid the possibility of any misunderstanding, the footnotes for Table VIII-3 will be revised to reflect the foregoing. In addition, an appropriate reference will be made to Tables 5 and 6 of Section IV, Appendix G which contain the detailed backup for the cited acreage.

Amortization of a system's capital costs were computed using a range of interest rates. Those given in the Summary Report were based on the then-current Federal interest rate of 5.5 percent. The results of using higher interest rates, namely 7 and 10 percent, are presented in Appendix D. It should be understood that the annual cost equivalents presented in the report are meant to provide a cost comparison rather than a cost effectiveness relationship between alternative systems and components. The cost-effectiveness assessment was completed during the initial and intermediate stages of the study; the results of which are presented in Appendix C.



21 December 1973

It is important to recognize that the capital cost for Alternatives IV and V would be increased if it proved necessary to purchase rather than lease the acreage required for spray irrigation. However, the resulting increase in capital costs would be more offset by a corresponding decrease in the system's annual operational charges. As presently structured, the operational cost budget includes certain payments to both the participating land owner as well as local governmental units. One of these costs involve an annual payment to compensate the present or future owner for his inability to realize any long-term capital gain from alternative land uses. The amount of this annual payment was eventually determined to be equal in worth to four percent of the land's market value. Consequently, the sum of payments made over the 50-year economic life would represent an expenditure greater than any purchase cost. Even so, it was concluded that such an approach as outright purchase, could destroy the social and economic structure of the rural areas. It was for that reason that acquisition in fee was not employed.

I am not really in a position to respond to your comments on the validity of the NDCP goals, the extent of regionalization which should be considered and the need to treat stormwater runoff as non-point source of pollution. While the rationale pertinent to these points of concern are presented in the report, these are matters directly relating to established national goals and must be assessed in that framework of consideration. Hopefully, the findings of this report will contribute to such an assessment.

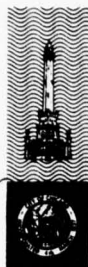
In closing, I wish to express my appreciation for the cooperative effort that your organization displayed during the course of this planning effort. Your comments should contribute to the public understanding of the problems that management entities, such as yours, face in their operations.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

JAMES W. JARDINE  
COMMISSIONER



CITY OF CHICAGO, RICHARD J. DALEY, MAYOR

DEPARTMENT OF WATER AND SEWERS

RICHARD A. PAVIA  
Deputy Commissioner

JOHN B. W. COREY  
Chief Water Engineer

EDWARD A. QUIGLEY  
Deputy Commissioner of Sewers

November 30, 1973

Col. James M. Miller  
District Engineer  
Department of the Army  
Chicago District Corps of Engineers  
219 S. Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

The Summary Report of the Corps of Engineers Wastewater Management Study for the Chicago South End of Lake Michigan area has been reviewed by the Bureau of Water of the City of Chicago. This letter is in reply to letters dated September 24, 1973 and directed to Richard A. Pavia, Acting Commissioner, Department of Water and Sewers and to John B. W. Corey, Chief Water Engineer, Department of Water and Sewers.

There are two aspects of the report which would have a direct and possibly undesirable impact upon our operations. These aspects hold true for all five alternatives.

First, on Page V-1, the Summary states that the level of treatment in those plants or streams tributary to the Illinois River will be equivalent to the secondary treatment, and "On streams tributary to Lake Michigan, a higher level of treatment is to be achieved". In all likelihood, the higher level of treatment would be adequate, but because there is a lack of knowledge regarding long term effects upon humans who use treated wastewater, we would be opposed to any plan which provides for the discharge of any treated wastewater into streams discharging into Lake Michigan.

Second, on Page VI-8, under the subheading "Potable Water Supply", there is the statement "One solution would be to reallocate the allowable withdrawals (3200 cfs) and meet the remainder of the projected requirements with groundwater and treated wastewater".

The allocation of withdrawals from Lake Michigan of 3200 cubic feet per second are under study by the State of Illinois under a plan previously announced. The City of Chicago was allocated an amount to meet its needs, and those of suburbs which it supplies, to the year 1980. Reallocation of the allowable withdrawals, which might result in a reduction in the

quantity of water available to the City of Chicago, would be unacceptable.

In discussions with communities which are eligible for Chicago water, as authorized by Illinois State Statute, we have emphasized that it would be incumbent upon the community to obtain an allocation from the State of Illinois if they are to be supplied from the Chicago Water System. Communities, which have expressed an interest in Chicago water, are doing so because of the diminishing quantity of water available from ground water sources. It, therefore, does not appear that there are available ground water sources to meet the increasing demands of the region.

For the reasons indicated above, we are opposed to any plans which would result in a reduction in the allocation of Lake Michigan Water to the City of Chicago.

Our comments have been confined to the two specific areas which have an impact on the Chicago Water System. Nevertheless, we have reviewed the entire report and have found it to be a comprehensive presentation of alternatives.

Yours very truly,

*Richard G. Paris*  
Acting Commissioner

Originated by:

*J. H. W. C.*  
Chief Water Engineer  
jbwc:en

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CORPS OF ENGINEERS CHICAGO ILL CHICAGO DISTRICT  
WASTEWATER MANAGEMENT STUDY FOR CHICAGO-SOUTH END OF LAKE MICHIGAN--ETC(U)  
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**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

20 December 1973

Mr. Richard A. Pavia  
Department of Water and Sewers  
City of Chicago  
Room 403, City Hall  
Chicago, Illinois 60602

Dear Mr. Pavia:

This is to acknowledge the receipt of your comments on the draft report concerned with the management of wastewater sources in the Chicago-South End of Lake Michigan area. Your letter along with this reply will be published in Appendix I, Comments. The responses are in the same order as those comments presented in your letter.

The return (receiving water) regimen to which you refer is one that is currently in effect, having been approved by the individual States and the U. S. Environmental Protection Agency. The objective of the City of Chicago to preserve the quality and environmental integrity of Lake Michigan by diverting its treated waste loads into the Illinois River has been incorporated where applicable. Nevertheless, in the absence of a regional approach controlling the return regimen into the Great Lakes, the individual State and Federally-approved programs have had to serve as a basis of design for the alternative wastewater management systems.

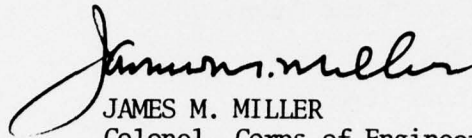
The planning concept pertaining to the reallocation of allowable Lake Michigan withdrawals was framed to explore the potential for achieving a far greater range of water usage than now is available to the study area including the City of Chicago. Involved was an assessment of the balance which could be achieved, if the treated wastewater was used as a supplemental source of supply in meeting the area's water needs. In fact, the insufficiency of available ground water sources to meet localized demands one of the basic reasons for assessing the water balance and reuse potential associated with the alternative wastewater management systems. Since reuse was the basic criteria for establishing the effluent standard used in design, benefits attributable to the NDCP water quality goal will be reflected by the increase in the quantity as well as quality of water made available for various public uses.

NCCPD  
Mr. Richard A. Pavia

20 December 1973

In closing, I would like to express my appreciation for your comment as to the comprehensiveness of the presentation. Hopefully, the report will provide information and design considerations which will have utility in solving the needs and problems of the area.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

OCT 22 1973

Colonel James M. Miller, District Engineer  
Department of the Army  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Re: Wasterwater Management Study,  
Summary Report - July,,1973

City of Chicago  
Richard J. Daley, mayor

Department of Public Works  
Bureau of Engineering

320 North Clark Street  
Room 700  
Chicago, Illinois 60610  
312-744-3544

Milton Pikarsky, commissioner  
Marshall Suloway,  
chief engineer

Dear Colonel Miller:

We have completed our review of the subject report as transmitted by your letter of September 24, 1973. Our comments are given in the subsequent paragraphs.

The Chicago Underflow Plan is a part of the conveyance system utilized by the Wastewater Management Study. Since the Underflow Plan eliminates all combined sewer overflows to the waterways except for a few hours of the three largest storms in history (if they were to repeat), the statement of goals given on Page I-1, "eliminate the discharge of pollutants into lakes and streams of the study area," is not completely correct.


On Page II-6 the following statement appears, "Typically, combined sewers deliver dry weather (municipal) flows to an interceptor sewer which conveys the flow to the treatment plant; but rainfalls of only 1 1/4 to 2 times dry weather flows, a fairly ....". The underlined portion should be corrected by substituting the phrase, rainfalls causing runoff equivalent to 1/4 to 1 times dry weather flows.

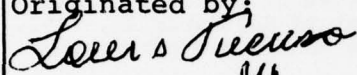

On Pages V-4 and VI-8 mention is made of reusing treated wastewater. Although we have no objections from the point of view of public health to the use of treated wastewater for some industrial purposes, the use of such water for potable purposes should not be considered until it can be conclusively proven that it can be done safely.

Colonel James M. Miller,  
District Engineer

-2-

If we can be of any further service to you in regards  
to this matter, please do not hesitate to contact us.

Very truly yours  
  
Marshall Suloway  
Acting Commissioner

Originated by:  
  
Louis Koncza   
Acting Chief Engineer

I-IV-18





NCCPD

**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

7 December 1973

Mr. Marshall Suloway  
Department of Public Works  
Bureau of Engineering  
City of Chicago  
320 North Clark Street, Room 700  
Chicago, Illinois 60610

Dear Mr. Suloway:

This is in response to your comments concerning the draft report on the wastewater management study conducted for the Chicago-South End of Lake Michigan (C-SELM) area. Your letter, together with this reply will be published in Appendix I, Comments. The responses follow the same sequence as the comments in your letter.

The Chicago Underflow Plan is part of the regional conveyance system utilized for all systems, including the NDCP Alternatives. In fact, the tunnel and reservoir plan served as a prototype for the control of wastewater and surface runoff in those areas presently served by combined sewers.

As is stated in Appendix C, Section III, the NDCP water quality goal was defined in terms of an effluent standard. Once the effluent standard for treatment was determined the sources of pollutants requiring control had to be identified. Stormwater runoff as a non-point pollutant was one such source. The extent of runoff control used in the design of the NDCP systems was based on published studies of discharge from separated storm water sewers; particularly one involving samples taken on a flow-weighted basis. The fact that the analysis confirmed a necessity to capture and treat the same degree of runoff as used in the Chicago Underflow Plan is coincidental. However, it should be noted that the level of stormwater runoff selected for the Underflow Plan reflected the necessity to achieve a desired level of flood control, as well as in-stream water quality standards. Consequently, there was a distinct difference in design criteria, though the end result of storm water capture was the same. As the C-SELM report states, this level of control and treatment was considered to be representative of the NDCP goal for achieving a maximum but reasonable degree of water purity. Thus, while some degree of spillage will occur, any degradation should be temporary and should not adversely affect the long-term stability of the enhanced aquatic ecosystem.

NCCPD  
Mr. Marshall Suloway

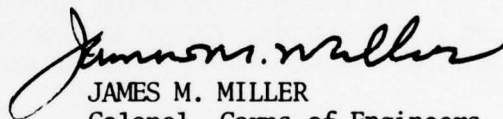
7 December 1973

The statement in Section II of the Summary Report that is applicable to the capacity of the combined sewers has been revised. The overflow implications are pertinent to the understanding of the problems facing the urban areas because of growth.

The reuse of treated water is the subject of much interest since many communities use in-stream flows as their current source of water supply. In many cases these flows include the wastewater discharge from the upstream municipalities. Potential reuse, in fact, was the basis for determining the lists and acceptable levels of critical pollutant that were used as the effluent standard for the NDCP water quality goal. One of the four categories of water use which served to determine the stringent level for each constituent was potable water supply. In that case, the Public Health Service Drinking Water Standards were utilized. Moreover, the flow-mix between treated wastewater and Lake Michigan withdrawals was regulated in system design (and cost) to insure the reuse potential. While this dilutive effect was undertaken primarily to maintain an acceptable level of total dissolved solids, it was recognized that the level of the other constituents also would be concurrently reduced.

Your interest in this study has been appreciated.

Sincerely yours,

  
JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

SECTION V

COMMENTS

FROM

LOCAL ORGANIZATIONS

AND

INDIVIDUALS



## **Kankakee County Soil and Water Conservation District**

Post Office Building  
475 E. Court St. Kankakee, Illinois 60901 Phone: 933-4231

November 13, 1973

James M. Miller  
Colonel, Corps of Engineers  
Department of the Army  
Chicago District  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

Members of our board have attended hearings on Chicago South End Lake Michigan (CSELM) wastewater management study. We have also read parts of the rough draft summary report dated July 1973.

We believe pilot studies should be considered on all three systems - land treatment, advanced biological, and physical-chemical. The evaluations of the systems should be made known to the public. Also, we believe that consideration should be given to having private enterprise provide bids for operation of a selected system for municipalities within CSELM.

Very truly yours,

*Virgil Paquette* <sup>GA</sup>

Virgil Paquette  
Chairman





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

11 December 1973

Mr. Virgil Paquette, Chairman  
Kankakee County Soil and Water  
Conservation District  
Post Office Building  
475 East Court Street  
Kankakee, Illinois 60901

Dear Mr. Paquette:

This is to acknowledge receipt of your letter concerning the draft report for the Chicago-South End of Lake Michigan area wastewater management study. Your letter together with this reply will be included in Appendix I, Comments.

This office concurs in your suggestion that pilot studies should be considered for all three treatment technologies. Specific examples of the type of technical data required are outlined in Section XI of Appendix G. As you know, the U. S. Environmental Protection Agency presently is financing some of the research aspects of a full-scale land treatment system in Michigan. Similar research projects on land reclamation and sludge disposal also are in operation throughout the country. Therefore, it is to be expected that within the next few years additional technical data relative to the recycling of wastewater and its residual by-products will become available to those having an interest in this matter.

Sincerely yours,

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



GENERAL OFFICE  
EAST WEST TOLLWAY AT ROUTE 59  
POST OFFICE BOX 190  
AURORA, ILLINOIS 60507

TELEPHONE 355-8000  
AREA CODE 312

November 8, 1973

Colonel James M. Miller  
Chicago District Engineer  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

I am replying for committee member R. F. Collen regarding the  
Summary Report For C-SELM dated July, 1973.

The report is well done and most comprehensive. It provides a  
sufficient number of alternatives and combination alternatives  
to be very useful for future wastewater management programs in  
the area involved.

My only negative comment is that local wastewater planning  
groups may not be aware of the report or for some reason may  
avoid referring to its findings. Perhaps by some means, state  
and local agencies in Illinois and Indiana could be compelled  
to review the report findings and so acknowledge in writing  
when their future plans for wastewater plans are submitted for  
governmental review and/or approval.

In addition to commenting for R. F. Collen, we both commend  
you for your leadership in preparing the C-SELM report and  
wish you success on your next assignment.

Sincerely yours,

A handwritten signature in cursive script that reads "J. G. Kaltwasser".

J. G. Kaltwasser  
Director Environmental Planning  
and Control

mg

cc: R. F. Collen

I-V-3

AN INVESTOR-OWNED TAXPAYING BUSINESS



**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

11 December 1973

Mr. J. G. Kaltwasser  
Director, Environmental Planning  
and Control  
Northern Illinois Gas Company  
P. O. Box 190  
Aurora, Illinois 60507

Dear Mr. Kaltwasser:

This is to acknowledge receipt of your letter and comments on the draft report for the Chicago-South End of Lake Michigan area wastewater management study. Your letter, together with this reply will be included in Appendix I, Comments.

Please be assured that every effort will be made to apprise the appropriate planning groups of the study and its findings. It is our intent to furnish a full set of the report to all State and local agencies known to have a responsibility in both the water resources and wastewater management fields. In addition, copies will be given to the appropriate regional clearing-house agencies who are required to approve and certify local wastewater plans in order that they may be eligible for funding under the grant programs administered by the U. S. Environmental Protection Agency.

I also would like to take this opportunity to express my appreciation for the time and effort expended by the members of the industrial community who participated in this study. The importance of this input, particularly as it pertains to the resource assessment and energy implications, certainly has been underscored by recent events.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller", is positioned above the typed name.

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

# KANKAKEE COUNTY FARM BUREAU

"IT DOESN'T COST — IT PAYS"

1605 West Court Street • Box 667 • Kankakee, Illinois 60901 • Phone 932-7471



Over 50 Years of Service in Kankakee County

December 27, 1973

Department of the Army  
Chicago District  
Corps of Engineers  
Col. James M. Miller,  
District Engineer  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Mr. Miller:

The Kankakee County Farm Bureau wishes to thank the Corps of Engineers for sending us a final report on the planning study on waste water management for the Chicago, South End of Lake Michigan area, known as C-Selm. Our organization is very much concerned with this study and proposal and have attended most of the meetings in the area and made statements during the meetings and have filed statements following it.

I understand that organizations and groups concerned can still make a final statement to go into the final report which will be forthcoming at a later date. The Kankakee County Farm Bureau wishes to reaffirm their previous stand in opposing this proposal.

Kankakee and adjoining counties are opposed to this proposal because of the many uncertainties there are and its effect on the community. Kankakee County Farm Bureau feels that there should be much more research and study with some pilot projects in order to gain more accurate knowledge of its effects.

The report seems to be very thorough, but complicated at best to understand. We are making an effort to have this report studied to have a better knowledge of its effect. We would be the first to admit that there could be some good features in some of these alternate plans, but it seems there are so many unanswered questions, we cannot justify any other position.

We hope that this will become a matter of record in your final report.

Sincerely yours,

KANKAKEE COUNTY FARM BUREAU

*Robert J. Diefenbach*  
Robert J. Diefenbach,  
President

RJD/JS/dm

I-V-5





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

9 January 1974

Mr. Robert J. Diefenbach, President  
Kankakee County Farm Bureau  
1605 West Court Street  
P. O. Box 667  
Kankakee, Illinois 60901

Dear Mr. Diefenbach:

This is in response to your letter and comments on the draft report for the Chicago-South End of Lake Michigan area wastewater management study. Your letter, together with this reply, will be reprinted in Appendix I, Comments.

I certainly can appreciate your organization's concern over the effects that the Land Treatment alternatives could have on the agricultural communities. This office has made a concerted effort to identify the social, economic as well as environmental impacts to the outlying area. That is why, for instance, the report identifies two different land-related impacts. The first lists the acreage required for the operation of the land treatment system. The second assessment identifies the acreage which would be indirectly affected by the alternative. In reality the latter assessment underscores a potential impact that such a system could have on the surrounding land. As the report states, more of this land would be retained in agricultural useage than might ordinarily be expected over time, due to current trends in land-use conversion. Whether this constraint, i.e., continued commitment to agricultural rather than other land uses such as commercial or increased urbanization, is beneficial or adverse must be determined by those people residing in the affected counties.

I also agree that continued research and study, together with some pilot projects are needed. While sufficient scientific knowledge exists today to make this study a meaningful planning effort, additional technical data are required before final design for all three technologies is undertaken. Specific examples of such technical data are presented in Section XI of Appendix G. As you know, the U. S. Environmental Protection Agency is currently financing some of the research aspects of a full-scale land treatment system in Michigan. Similar research projects on land reclamation and sludge disposal also are in operation throughout the country.

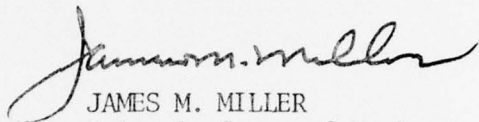
NCCPD  
Mr. Robert J. Diefenbach

9 January 1974

Therefore, within the next few years more detailed technical data on recycling of wastewater and its residual by-products will be added to our scientific knowledge and facilitate the design process.

In closing, I would like to express my appreciation for your cooperative attitude and to encourage efforts by your organizations to support additional research and study of these matters.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer


**Illinois Central Gulf Railroad**

an IC Industries company

October 16, 1973

Mr. James M. Miller  
Colonel, Corps of Engineer  
District Engineer  
Department of the Army  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Miller:

I have just finished reviewing the draft of the Summary Report of the wastewater study for the Chicago - South End of Lake Michigan (C-SELM) area and found it to be a thorough but concise analysis of the alternatives available and their impact. I feel that some positive action will have to be taken to provide an adequate water supply for the C-SELM area and improve the water quality in that area.

At the present time, I feel Alternative V, Land, Advanced Biological Combination, provides many of the advantages of both means of treatment while compromising the disadvantages of both process methods. It achieves the treatment available with Alternative III but at a significantly lower cost. It provides relatively high employment while at the same time minimizing the number of people that might be adversely affected being lower than any of the alternatives except Alternative I.

The major disadvantages in the other alternatives, as I see it, are: Alternative I does not solve the problem of the depletion of ground water sources in the study area and does not provide for any water reuse potentials; Alternative II require the use of large quantities of natural gas which will contribute to the energy crisis in the future and the emission of large quantities of chemicals and particulates; Alternative III involves more money; Alternative IV requires the use of large parcels of land outside the study area.

Two points I question which I did not read in the summary are the possible adverse attitude of the farmers of the affected area towards the use of land treatment and the possibility of the build up of heavy metals or other toxic non-biodegradable substances in the soil and the possibility of them seeping through to the ground water over a fifty-year period.

Very truly yours

*A J Dolby*

A. J. Dolby  
Environmental Engineer

135 East Eleventh Place/Chicago Illinois 60605  
Telephone 312 922 4811

BTN:hr

I-V-9

*I-V-8  
Blank*



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

18 December 1973

Mr. A. J. Dolby  
Environmental Engineer  
Illinois Central Gulf Railroad  
135 East Eleventh Place  
Chicago, Illinois 60605

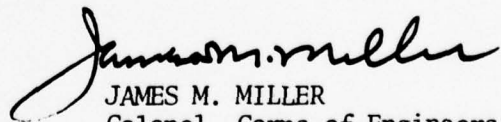
Dear Mr. Dolby:

This is to acknowledge receipt of your letter concerning the draft report on the Chicago-South End of Lake Michigan area wastewater management study. Your letter, together with this reply will be included in Appendix I, Comments.

The viewpoints of your organization regarding the desirable and undesirable aspects of each wastewater management alternative and planning options are appreciated. The assessment undertaken by this office has purposely tried to underscore the necessity to consider all regional implications involved in wastewater management planning. Therefore, your comments should contribute to the public understanding of the problems implicit in such decisions.

Information pertinent to the two questions you have raised are set forth in the report. The attitude of the agricultural community towards the use of their resources if the land treatment system were to be implemented, is discussed in Section VII of the Summary Report and in the impact tables for Alternatives IV and V. The possible build up of heavy metals or other toxic materials in the soils is discussed in the Data Annex to Appendix B, Section IV-A-100, and Section VII of Appendix G.

Sincerely yours,

  
JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



MID-WEST COAL PRODUCERS INSTITUTE, INC.

Suite 220, Reisch Building  
117 South Fifth Street  
SPRINGFIELD, ILLINOIS 62701  
Area Code 217 — Telephone 528-2092

November 15, 1973

Colonel Richard M. Wells  
Corps of Engineers  
District Engineer  
Department of the Army  
219 South Dearborn Street  
Chicago, Illinois 60604

Dear Colonel Wells:

This refers to your request for comments from the Citizen's Advisory Committee for Commerce and Industry on the reports and summary of the Wastewater Management Study for Chicago South End Lake Michigan.

At the outset, it must be recognized that it is not only difficult for industry to address itself to the projected long-range time frame of this Study, but because of problems of the diversity of industries represented on the Committee, to transmit a statement which directly gives a weighted composite view of those industries. Additionally, the Committee members appreciate that they are not experts in public sewerage disposal problems.

However, a reading of the Summary Report leads to some general conclusions and comments. It is believed the following pretty well expresses the overall views of this Committee.

Certain features of any successful solution to the problems of wastewater management for the future in the Greater Chicago area must be based upon several premises:

1. Any plan must be relevant to the environment of the area. In this particular case — the industrial environment — this is an old, established and developed industrial complex with a variety of existing problems, standards, and overlapping of control authorities. Under such conditions, it is only practical to proceed from where we are now and evolve toward recommended solutions. If we were applying what's considered an ideal solution coordinated with planning a model industrial and urban community, the problems and the wastewater solutions would be different. This raises a serious question whether the plan selected from the alternates is really relevant to the present environment, both industrially and municipally.

2. The ultimate solution to the wastewater management problem must be acceptable alternates within the state of the art of treatment and at a

financial cost that is not truly prohibitive and is politically acceptable. Otherwise such solutions become in fact a flat prohibition rather than a charter for a prudent continuance. Factors in all these areas have raised doubts. Truly there has been some indication on a relatively small scale that land disposal is feasible, but conversely questions have been raised which longer experience may not satisfactorily answer. These questions, particularly involving the health and hygiene aspects are recorded in the Corps of Engineers special report - 171, which was made available to the Committee. Also such terms as "living filter" in the description of the alternates admittedly captures the imagination of uninformed environmentalists but does not address itself to some of the realities of the concept. However, let us assume for the sake of argument the selected method is technically feasible and politically acceptable and will accomplish the results anticipated. This then raises questions in the minds of the Committee what assurances are there that the present water quality standards on which these solutions are based are and will be the ones to be met. There is an increasing reason for belief that the amendments of 1972, for example, to the Federal Water Pollution Control Act (PL 92-500) which prescribes such severe effluent and related requirements in order to supposedly completely cleanse our waterways, will probably be amended as the impact of these requirements of the law is subject to continued and detailed study. Instability of both the Federal and the State (Illinois) water quality standards and their administration has been one of the hallmarks of the program in recent years. They have presented industry continually with a moving target during these years. Federally there have been at least 4 reorganizations to placing water pollution in other governmental agencies which has involved at least 6 changes in the top level personnel, namely the Administrator. On the State of Illinois level, since 1965 there have been at least 6 major modifications of stream water quality standards and in the past year, 4 different EPA Directors, each involving changes in administration and policy.

These are merely cited to illustrate industry's apprehension in endorsing, and the Committee itself, a program with staggering amounts of money involved when the rationale or foundation of the program is being based upon continuing questionable administration and with justifiable doubts whether current State and Federal statutes will continue to be in effect in their present form.

From the time this Study was inaugurated and continually as it progressed toward its completion, doubts originally expressed have been increased and some confirmed.

This Committee does not want to be on record with a negative attitude toward improved treatment of any waste that could be detrimental to the environment. On the positive side, we believe the ultimate solutions in the area of wastewater management problems in our judgment should make maximum use of the availability and the use of the existing waterway systems. These systems recognizably must have a multi-purpose use as sources of both municipal and industrial supply, aquatic recreation, fishing, a waterway for commercial barge traffic and to assimilate and transport treated waste from our municipalities and industries. The current problem as we view it is not one of discarding these concepts and inaugurating questionable systems of land disposal, but to adopt a wastewater management program that will make these multi-purpose uses compatible within the economic framework of the area and as the various industrial activities and production relate to competitive areas elsewhere.

November 15, 1973

It is believed that a practical approach is one that is directed to keeping all of these legitimate practical and multi-purpose uses in balance and not permit the overuse nor "overprotection" of a specific use. We must have reasonable and balanced objectives. These must be related to a water quality that is relevant to the environment, acceptable within the state of the art and measurable and having some stability for continued acceptance. We merely cite the cycle of circumstances relating to the phosphorus standard as an example illustrating the changing aspect of the above criteria for standards. There are a number of other similar examples that could be cited.

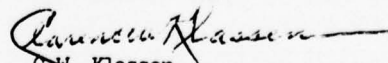
To summarize the above as they relate to the proposed land disposal alternates, the foregoing thoughts lead to the conclusion that all of the proposed land disposal alternates should be rejected. The costs of a land disposal system would be staggering, particularly, in comparison with the benefits. Even without the population displacement and the changed land use that this system would require, the emotional reaction by people affected in the localities, where the land disposal would be accomplished, would make the adoption of any such system politically unrealistic. From legislation, news media comments and public hearings, we are certain you are aware of this. Additionally, technical considerations raise serious questions about the merit of such a method. The cost of energy involved in such a system would be great at a time when our energy resources are dwindling. Perhaps more important, there has been inadequate research on the effectiveness and the possible pollution impact of such a system on the soil involved.

It therefore seems logical that any system adopted must proceed on the basis of continued use, modernization and expansion of existing wastewater treatment plants. The abandonment of any of them, with possible losses due to their bonded indebtedness, would be a serious matter that would have to be a combination of advanced biological treatment plants and physical/chemical treatment plants compatible with stream use. Improving technology will dictate this as additional treatment capacity is needed. In any event, the system should avail itself of the assimilative capacity of streams. We think this philosophy will be permitted by future amendments to the Water Quality Act. Certainly, it is unwise to proceed with planning for the next 45 years based on the assumption that the Water Quality Act in its present form will remain unchanged for that length of time.

As to those industrial firms now discharging wastewater into streams, they would be permitted to continue to do so regardless of any overall regional wastewater management system that might be recommended and providing, of course, that effluent from such plants would include adequate treatment to meet the requirements of pertinent laws and regulations and multi-purpose stream use.

The Committee has appreciated the opportunity to participate in this Study and review for comments the Corps alternate proposals.

Very truly yours,



C.W. Klassen,  
Environment Consultant  
Chairman, Citizen's  
Advisory Committee

CWK:jlh





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

15 January 1974

Mr. C. W. Klassen  
Environmental Consultant  
2022 Outer Park Drive  
Springfield, Illinois 62704

Dear Mr. Klassen:

This is in reply to your letter concerning the draft report for the wastewater management study of the Chicago-South End of Lake Michigan area. Your letter, together with this reply will be published in Appendix I, Comments. The responses follow the same sequence as the comments presented in your letter.

The viewpoints of the Commerce and Industrial work group concerning both the desirable and undesirable aspects of each alternative and planning option are greatly appreciated. Your comments should contribute to the public understanding of the perspective that industry has in relation to the national effort for cleaning up our environment. At the same time, I would like to take this opportunity to clarify a few of the concerns that you have specifically itemized.

I agree that any plan must be relevant to the environment of the area. Our planning has been based on a framework that would permit proceeding from the area's present system to one that would be responsive to the NDCP water quality goal and the economies of scale implicit in regionalization. In this way, local interests will have the capability to logically plan and construct any of the suggested solutions in various incremental stages. As you know, the industrial requirements have been evaluated separately in order that industry and the environmental agencies have a better framework with which to work together.

In response to your concern that the ultimate solution must be financially practicable, I can only note that decisions pertinent to this matter are the responsibility of others. We do agree, though, that any solution selected must be politically and socially acceptable. Moreover, no one can be assured that the water quality standards used to design the NDCP system will be identical to the ones which ultimately will be adopted nationwide. However, it should be pointed out that Public Law



15 January 1974

92-500 does recognize the feasibility of phasing the upgrading of an area's treatment facilities. The very magnitude of the resource implications, social, institutional and environmental considerations associated with these water quality goals may well necessitate time-phasing the improvements as a practical matter. Admittedly there has been some difficulty in establishing water quality standards and administering their enactment but this should not be raised as a deterrent to eventually achieving these water quality goals.

Your concern that the water quality goal must be one that would neither permit the overuse nor overprotection of our waters must be viewed within the objectives of PL 92-500. Past usage and management practices have degraded our streams. It is the intent of the act to insure the restoration of this resource. As you know, the act has established a national study commission known as the National Commission on Water Quality. It is the function of that Commission to study all of the technological aspects for achieving the more intermediate (1983) effluent limitations and water quality goals established by Congress. In addition, the Commission will assess the total economic, social and environmental aspects of achieving or not achieving these goals. Finally, the Commission also intends to examine progress towards the "Elimination of the discharge of pollutants" as an indicator of what will have to be done after 1983. Therefore, the concerns voiced by industry should be properly assessed. It is hoped that our report will also contribute to this assessment.

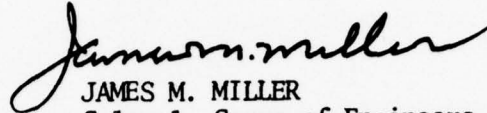
The range of alternative solutions which have been outlined in the report certainly can meet the philosophy that you have expressed. Use of the assimilative capacity of the streams is certainly acceptable and effluent standards can be modified if the dilutive capacity is sufficient. Unfortunately, the 7-day, 10-year low flow in the study area is practically zero or the effluent discharge from the existing treatment plants. We also concur that those industrial firms now discharging their wastewater into streams could continue to do so, providing that the degree of on-site treatment would be in consonance with the pertinent standards and regulations governing useage of the streams. However, should such a high water quality goal as the NDCP standard be adopted, it may well prove more economical to provide specific pre-treatment on site and to discharge the resultant blowdown into the areawide systems. Comparative economic analyses are presented in Section IV-C, page 38 of Appendix D to assist in such a decision.

NCCPD  
Mr. C. W. Klassen

15 January 1974

In closing I wish to express my appreciation for the time and effort expended by you and members of the Commerce and Industry work group during the course of the study. As you have indicated, involvement has been particularly complex because of the diversity of industries represented on the committee.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

CITY  
COLLEGES  
OF  
CHICAGO

64 EAST LAKE STREET • CHICAGO, ILLINOIS 60601 • 269-8000

## THE LOOP COLLEGE

13 November, 1973

Colonel James M. Miller  
Department of the Army  
Chicago, District, Corps of Engineers  
219 South Dearborn Street,  
Chicago, Illinois 60604

Dear Colonel Miller:

Having perused the Summary Report of the Corps of Engineers' C-SELM Study, I do not feel that I can comment adequately on the many technical characteristics that such a study necessitates. Hence, I tried to elicit response first from the two departments most directly concerned - biology and physical science. Enclosed you will find a comment from Dr. Evelyn Tyner of the Physical Science Department. I submitted the report to the Biology Department first, where it apparently got bogged down and Dr. Tyner was only able to have it for a couple of days. That left the Social Science Department a very short time span, since you wanted comments by 15 November. I intend to place thereport in our college library and circulate a memo to all faculty and staff concerning its existence. Perhaps you may receive further comments from that effort, howbeit tardy.

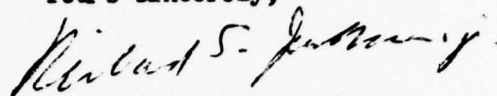
Concerning the alternatives, I am most favorable disposed toward Alternative IV, but do not feel it is economically or politically feasible. I like the idea of total recycling with no air pollution, the latter occurring in the other alternatives. However, the amount of land needed to develop this alternative, coupled with the constantly rising land costs in the areas considered will make the cost of such a project prohibitive. Besides this, a terrific selling job would have to be undertaken to convince residents of the counties involved that such a project would be beneficial. I do believe that the many foods produced in out state Illinois and consumed in Chicago should be returned in some form to the places of origin.

As a result of my above reservations concerning land costs, I would opt for Alternative V. Here, land costs are a factor, but not nearly as significant as in Alternative IV, and other advantages are present as well.

Finally, let me commend the Corps for undertaking such a study. Serious efforts such as these help to change the public image of your organization. These efforts are needed, since past practices have frequently run afoul of environmentally sound land use policies. I would hope the Corps continues these activities and makes an added effort to publicize them. Attendance at the August meeting in Chicago was miserable. I am sure, though, that attendance at meetings in areas most directly

affected by the results of these proposals was much greater! Still, more publicity would help. Such studies should be touted!

Yours sincerely,

A handwritten signature in cursive script, reading "Richard S. Jackson, Jr.".

Richard S. Jackson, Jr.,

Associate Professor of geography,  
Social Science Department





DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

18 December 1973

Mr. Richard S. Jackson, Jr.  
Associate Professor of Geography  
Social Science Department  
Loop College  
64 E. Lake Street  
Chicago, Illinois 60601

Dear Mr. Jackson:

This is to acknowledge receipt of your comments on the draft report concerning the Chicago-South End of Lake Michigan area wastewater management study. Your letter, together with this reply, will be published as part of Appendix I, Comments. The comments of Dr. Evelyn Tyner, Physical Science Department, have not been reproduced, since they are embodied in your letter.

Your viewpoints concerning the desirable and undesirable aspects of the various alternatives and planning options are greatly appreciated. I feel that the interest exhibited by the academic profession is encouraging and that over time their involvement in such planning efforts will be more pronounced. It is through this kind of involvement that the public will become more aware of the problems and concerns which must be faced as the nation cleans up its environment.

Sincerely yours,

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

## NORTH BRANCH COALITION

Dedicated to the restoration of the North Branch of the Chicago River

RALPH FRESE - CHAIRMAN  
4019 N. NARRAGANSETT  
CHICAGO, ILL. 60634  
TELEPHONE 777-1489

JAMES PARKER - CO-CHAIRMAN  
3918 N. LAWNDALE AVE.  
CHICAGO, ILL. 60618  
TELEPHONE 883-4493

MRS. RAYMOND W. MILLER  
SECRETARY

2316 Prospect Avenue  
Evanston, Illinois 60201  
November 13, 1973

Colonel James M. Miller  
Chicago District, Corps of  
Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

### PARTICIPATING ORGANIZATIONS -

COOK COUNTY  
CLEAN STREAMS COMMITTEE  
JACK SNARR

NORTH BRANCH CIVIC ASSOC.  
ROGER ST. MARTIN  
PRESIDENT

ILLINOIS PADDLING COUNCIL  
DENNIS BURMEISTER  
CONSERVATION CHAIRMAN

NORTH RIVER COMMISSION  
DR. WILLIAM J. FREDRICKSON  
PRESIDENT

OLENVIEW CHAPTER  
ISAAC WALTON LEAGUE  
GEORGE SAWICKI

TERMINAL AREA  
CIVIC ASSOCIATION  
MRS. ELEANOR NIMBEK  
PRESIDENT

COMMUNITIES FOR SURVIVAL  
MORTON GROVE  
RICHARD BLANCHARD

PARK VIEW CIVIC ASSOC.  
OF CHICAGO  
THOMAS DUFFY  
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WEST RIVER PARK  
IMPROVEMENT ASSOCIATION  
MRS. EVELYN SZAR  
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CHICAGO PORTAGE PROJECT  
PHILIP E. VIERLING  
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CONCERNED CITIZENS  
COMMISSION  
DONALD WEISSMANN  
PRESIDENT

CONCERNED CITIZENS  
FOR CLEAN WATER  
MRS. FRANK DISVINCOUR  
PRESIDENT

Dear Colonel Miller:

On behalf of the North Branch Coalition I wish to express general endorsement of the Wastewater Management Study for Chicago South End of Lake Michigan. The goals and alternative approaches examined for the entire study area are consistent with the objectives sought by the Coalition for this single watershed.

In particular I wish to endorse the concepts and proposals set forth in Appendix G, Annex B of the study, and offer limited comment on three points included therein.

1. Controlling Stream Flows: While the Coalition <sup>appreciates</sup> the need for both flood control and flow augmentation along the North Branch, it would discourage any absolute stream flow control. Inherent in any recreation or conservation programs for the North Branch must be the retention of some flood plain ecological areas. In order to maintain their unique natural habitat these areas require both occasional flooding and drying periods.

2. Impoundments: While the Coalition further appreciates the the need for the capture and treatment of storm water runoff prior to its entry into the stream, it would be opposed to the construction of any on-stream impoundments for this or other purposes.

3. Rehabilitation of Skokie Lagoons: The importance of this aspect to any development along the North Branch can not be over-emphasized. The continued existence of the sludge-filled northernmost lagoon is a distinct deterrent to any recreation or conservation development downstream.

I-V-21

I-V-20  
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page two

North Branch Coalition members are pleased to have participated in the Wastewater Management Study, and would welcome the opportunity to supply input to allied programs or studies relating to the North Branch of the Chicago River.

Yours very truly,

*Jack Snarr*

J. F. Snarr



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

19 December 1973

Mr. Jack Snarr  
North Branch Coalition  
2316 Prospect Avenue  
Evanston, Illinois 60201

Dear Mr. Snarr:

This is in response to your letter on the draft report presenting the results of the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter together with this reply will be published in Appendix I, Comments.

I appreciate the effort you expended as Co-Chairman of the Citizen Advisory Committee for Conservation and Environment and in helping us develop the prototype model for the recreation-environmental corridor. This prototype will provide a useful alternative which local governmental agencies can employ in effecting a wise use of the floodplain lands. Achievement of such objectives, however, must be framed within an overall management framework of water and land resource commitments.

Your comments regarding the implementations of the corridors should be recognized during the later stages of system design. The prototype model does provide for a retention of some floodplain acreage for ecological preservation. Not all of the floodplains can, nor should be, devoted to recreational usage. A major factor affecting this consideration will be the use of the adjoining lands. At the same time, there may well be a need to artificially supplement the water regimen of wetlands in those areas that would be affected by the reduction in surface run-off or over bank flows. This can be incorporated in the system design, specifically the components dealing with the redistribution of the treated wastewater.

I also concur that where there is an effective use potential in the floodplain, any on-stream impoundments for stormwater retention would be inappropriate. However, there should be no need for such impoundments since the stormwater management system provides for the capture and retention of surface runoff prior to its entry into the stream. On the other hand, the restoration of in-stream areas, particularly such eco-unique resources as the Skokie Lagoons, should be provided as part of the total effort for upgrading the aquatic ecosystem.

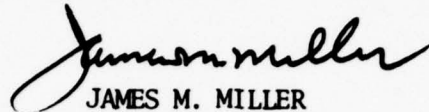


NCCPD  
Mr. Jack Snarr

19 December 1973

The magnitude of the study effort together with its complexities and abbreviated schedule imposed tremendous manpower commitments on the part of all concerned. The fact that the North Branch Coalition participated and provided invaluable support is indicative of its public concern.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

# LAKE MICHIGAN FEDERATION

53 West Jackson Blvd. Chicago, Illinois 60604 (312) 427-5121



November 15, 1973

Mrs. Lee Botts  
Executive Secretary  
Chicago, Illinois

#### EXECUTIVE COUNCIL

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Winnetka, Illinois

Col. James Miller  
Chicago District Office  
Army Corps of Engineers  
219 South Dearborn  
Chicago, Illinois 60604

Dear Colonel Miller:

This letter is to inform you that the comments made at the August public meeting regarding the final report on the Chicago-South End of Lake Michigan represent my comment on the final report, as requested to be submitted by this date.

Please note that these comments were submitted by me in my capacity as a staff member of the Lake Michigan Federation, and not on behalf of the Citizens Advisory Committee for Conservation and Environment. Owing to the lack of communication between the Corps and the Advisory Committee in the past year, the Vice-Chairman, Jack Snarr, and I did not consider it feasible to attempt to develop comments on behalf of the committee.

Also, it is not clear why additional comments were solicited in October in addition to comments solicited in August and both in regard to the final report.

While I recognize that the Corps may believe that it has communicated adequately with the Advisory Committee, unfortunately that is not the feeling of the persons who participated in the formation of the committee.

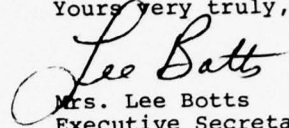
I would urge that for the future the procedure of establishing and communicating with such advisory bodies be examined carefully. Meanwhile, as far as the C-S-ELM project is concerned, in my judgment there has been a great failure of communication with the public regarding the project. This comment is not addressed to any individual in the Corps but to the procedures prescribed by Corps policy and which the Chicago District Office had no choice but to follow.

I-V-25

Please be advised of my concern about improving such procedures for future projects and willingness to assist in development of better means of communication if that should be desired.

Thank you for your attention.

Yours very truly,

  
Mrs. Lee Botts  
Executive Secretary

LB:bb

cc: Karl Hessel  
Planning Division  
Chicago District Office  
Army Corps of Engineers  
219 South Dearborn  
Chicago, Illinois 60604



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

10 January 1974

Mrs. Lee Botts  
Executive Secretary  
Lake Michigan Federation  
53 West Jackson Blvd.  
Chicago, Illinois 60604

Dear Mrs. Botts:

This is to acknowledge receipt of your letter concerning the draft report on the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter together with this reply will be published in Appendix I, Comments.

The purpose of this last review has been to obtain an in-depth perspective of all five alternatives that were retained for final study. These viewpoints, hopefully, will contribute to a better understanding of the individual concerns pertinent to the planning decisions that must be made over time. I realize that the committee you co-chaired was faced with many frustrations. As indicated in Appendix H, we have been very much aware of the problems associated with the intensive public involvement program undertaken for this study.

In perspective, the basic problem we faced was the total unfamiliarity which the average citizen has concerning the subject of wastewater management. This complicated our efforts to keep the participants apprised of the study findings and their significance. To overcome this problem it became necessary to develop and provide more detail than originally anticipated. In time, the large amount of information provided the participants led to the feeling of frustration, and, later, apathy on the part of many. The compressed time schedule in which the study was undertaken and the necessity to respond to complex issues without sufficient time for an in-depth discussion further magnified individual frustration.

All of these factors undoubtedly have proved aggravating to the chairpersons of the work groups. Nevertheless, it is important to realize that this study can contribute to the on-going public dialogue regarding the cleanup of our environment. Moreover, the comprehensiveness of this study should provide a meaningful perspective to the citizenry of the area as well as the rest of the nation.



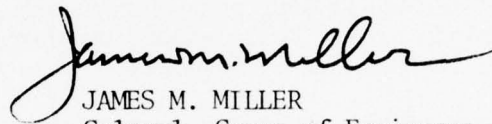
NCCPD  
Mrs. Lee Botts

10 January 1974

I agree with you that we can do a better job of working with various interest groups during our on-going study efforts. It is my hope that we can address this problem together in such a way as to assure that the Corps programs are totally responsive to the needs and desires of the area's residents.

In closing, I wish to extend my personal appreciation for the personal time and energy that you and the Co-Chairman, Mr. Snarr, have contributed. I feel that the input from your committee has materially added to our study. The work of the various conservation groups, particularly in defining the prototype model for the recreational and environmental corridors as well as the committee review of the screening processes, were invaluable.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller". The signature is fluid and extends to the right.

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer

ILLINOIS  
DIVISION  
OF THE

# Izaak Walton League of America

INCORPORATED

November 14, 1973

Department of the Army  
Chicago District Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Attention: Colonel Miller

Dear Sir:

I was recently named chairman of a new committee entitled the IWLA Quad-State Committee on Lake Michigan and have called the first formal meeting of the committee on Saturday, November 17.

The main subject of this meeting will be the Corps' Waste-water Management Study for Chicago-South End of Lake Michigan.

It has been brought to my attention that the deadline for comments regarding this report was set for tomorrow, November 15.

We respectfully request that we be allowed an extension of this deadline in which to submit a report of our committee.

We thank you for any consideration and request that any correspondence be directed to my home address, listed below.

Sincerely,

IZAAK WALTON LEAGUE OF AMERICA

William Buchheit, Vice President  
Illinois Division

**OFFICERS: 1973-1974 ILLINOIS DIVISION**

**PRESIDENT** JOHN T. CASE-404 HIGGINS RD.-PARK RIDGE, IL 60068  
**SECRETARY** MRS. BETTY R. TELLOR-IZAAK WALTON LAKE RD, R.R. 1, METAMORA, IL 61548  
**TREASURER** ELMER HALLEN-720 WEBER DRIVE-NORTHBROOK, IL 60062  
**VICE-PRESIDENTS** CARL TELLOR-IZAAK WALTON LAKE RD, R.R. 1, METAMORA, IL 61548  
WILLIAM BUCHHEIT-22 ARROWHEAD DR.-THORNTON, IL 60476  
MARIE CROWLEY-223 HOLLYWOOD-DES PLAINES, IL 60018



I-V-29

A NATIONAL ORGANIZATION DEDICATED TO  
THE WISE USE AND SOUND DEVELOPMENT OF AMERICA'S LANDS AND WATERS



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD-RL

21 November 1973

Mr. William Buchheit, Vice President  
Illinois Division  
Izaak Walton League of America Inc.  
RR 1  
Metamora, Illinois 61548

Dear Mr. Buchheit:

We have received your letter of 14 November 1973 concerning the draft report for the Chicago-South End of Lake Michigan (C-SELM) wastewater management planning study.

We are sorry to inform you that the announced deadline of 15 November 1973 for inclusion of comments in Appendix I of the Chicago District's final report cannot be extended. However, during the review process by our higher headquarters, there are opportunities when additional comments may be submitted for consideration. I am inclosing a copy of the tentative schedule for submission and review of the C-SELM wastewater management study by our higher headquarters. Comments may be submitted to the Board of Engineers for Rivers and Harbors (BERH) and to the Office of the Chief of Engineers (OCE) during their review of the report.

Both BERH and OCE will welcome comments submitted during their reviews. I strongly recommend that, upon issuance of the North Central Division Engineer's public notice stating the report has been completed and referred to BERH and OCE, you notify both BERH and OCE of your intention to submit late comments. Your written notice should cite the objectives in providing the comments and anticipated results as well as the estimated submission date. The comments should be submitted directly to BERH and OCE with copies furnished to the Chicago District. It would be best if comments were submitted prior to 15 May 1974, which is the tentative date the Chief of Engineers' draft report will be distributed to the Governors of Illinois and Indiana, as well as to concerned Federal agencies, for review and comment.

Sincerely yours,

*James M. Maas*

JAMES M. MAAS  
for Chief, Planning Division

1 Incl.  
as stated

I-V-30

cooperative EXTENSION SERVICE • STATE OF INDIANA  
Department of Agronomy  
Lilly Hall of Life Sciences

PURDUE UNIVERSITY  
and the  
U. S. DEPARTMENT of  
AGRICULTURE cooperating  
Lafayette, Indiana 47907

August 1, 1973

Col. Richard M. Wells  
District Engineer  
Chicago Dist. Corps of Engineers  
219 S. Dearborn St.  
Chicago, Ill. 60604

Dear Col. Wells:

We would like the Corps to have final comments of Purdue agriculturists on C-SELM to add to the official transcript of the final Indiana public meetings held August 1 and 2 1973. We understand that these will appear in the Comments Appendix of your report which will be submitted to Congress and will also be available to local and state officials responsible for eventually making wastewater management decisions.

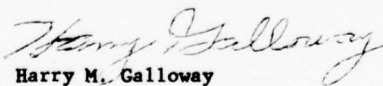
In our statement we brief the setting in which these wastewater management plans were introduced in so far as it affected acceptance of "land treatment" alternatives. We also outline requests recently made of us to suggest means by which more profitable relationships could develop between the Corps and Cooperative Extension Services in areas where other wastewater management plans will be introduced to the public in later years.

Purdue staff members have appreciated the opportunity to participate in reviews of various documents and in public meetings during the course of these studies. We trust that through what we and our colleagues from the University of Illinois have contributed we have helped you arrive at final plans which embody both what is known and what is not known about available technologies. Thus, people will eventually have sufficient knowledge from which to choose among these alternative with some degree of surety.

We also appreciate courtesies extended to us by Mr. James Maas and his associates in the Planning Divisions and all those others of your staff who have had a part in events where we have been mutually involved.

We wish you success in your new assignment in Washington D.C.

Sincerely,

  
Harry M. Galloway  
Extension Agronomist

HMG/alr

cc: R. L. Kohls  
H. G. Diesslin  
Herbert Kramer  
Marvin Phillips  
Robert Walker

I-V-31



FINAL STATEMENT ON WASTEWATER MANAGEMENT PLANS PREPARED BY THE US ARMY CORPS OF  
ENGINEERS FOR THE CHICAGO-SOUTH END OF LAKE MICHIGAN AREA (C-SELM)

Harry M. Galloway, Extension Agronomist  
Purdue University  
August 1, 1973

This paper will detail Purdue scientist's participation in studying wastewater management alternatives and the public setting in which it operated. It makes certain specific recommendations to the US Army Corps of Engineers which are underlined in the statement.

Introduction

Since initial introduction to the studies as they existed in late August 1972 it has been evident that it will be very difficult to acquaint the public with the needs for and the logic of various treatment systems proposed here. The vast amounts of wastewaters produced daily, the complexity of the gathering systems from the homes, businesses, and highly varied industries and from yet undeveloped countryside and the huge and growing populations of the area all serve to stagger the imagination.

Support of rural people outside the C-SELM area in consideration of "land treatment" alternatives proposed is perhaps most difficult to realize since the proposals would call for their longtime commitments to restrictive farming systems not demonstratable in the US on a comparable scale. Rural people fear the disruptions of normal life styles, community structure and pattern of land values. They recognize that wastewaters would receive lagoon treatment in rural areas prior to applying effluent to some croplands and sludges to other croplands. Reclaimed water would have to be returned to the C-SELM area for reuse. Thus, there is great concern for the large amount of land needed to construct lagoons and for health and safety of living things around the lagoons. There is also great concern for the need to construct several power plants probably close to these lagoons to produce the energy needed to pump the water back to the north.

For these reasons the natural logic of water cleanup through land, with the nutrient recycling to benefit growing crops, so highly regarded by sanitary engineers, geographers, many agricultural scientists and by environmentalists in

general is regarded with somewhat less esteem by modern day farmers. With only limited knowledge of how "land treatment" operations might affect their already highly productive cropping systems and unable to be certain of the scope of potential problems which might develop they prefer to continue with today's proven farming methods. They feel that they prefer to purchase their N and P fertilizers and chemicals to maintain production at present established levels.

#### Purdue's participation

Purdue agricultural scientists have been studying C-SELM wastewaters management proposals since Aug. 31, 1972. Soon after this they attended meetings held by the Corps to release plans to the public. They then helped arrange for formation of an agricultural group from Indiana to work with Illinois people as an advisory committee to the Corps. Following this they prepared educational materials and held public meetings in each of the counties potentially affected by "land treatment" proposals. They also helped keep members of the Indiana State Board of Health informed as well as other Purdue faculty members. Indiana soil and water technicians who attended a Soil Conservation Society of America meeting heard about the plans.

During the fall of 1972 agricultural scientists consulted frequently with Corps planners about technical aspects of land treatment as the Corps developed a paper "The Use of Land as a Method of Treating Wastewater" (1). They also consulted through this period with members of the Kankakee Valley Association to help them understand the knowns and unknowns about "land treatment" technology. Meanwhile they kept the Cooperative Extension field staff informed of progress so it could function locally with most efficiency.

In November agricultural scientists reviewed a draft of paper (1) and made concerns on a number of items felt by Indiana and Illinois scientists available to the Corps. In December, Purdue staff again reviewed the final draft of paper (1) in a detailed written form to the Corps. Concerns centered principally around the ability of the example corn-rye-soil system to remove phosphorus and nitrogen

over the 50 years system life envisioned to reach proposed NDCP water standards set by the Federal Water Pollution Control Act Amendments of 1972. Other concerns were for the ability of farmers to efficiently plant, cultivate and harvest under the proposed regime of 13 $\frac{1}{4}$  inches annually of treated wastewaters and their ability to adequately control weeds, insects and diseases. Pilot testing was called for at a scale and over time sufficient to resolve these concerns before "land treatment" is offered as proven technology to treat wastewaters at such a vast scale as envisioned here.

Corps officials responded to Purdue scientist's concerns by detailing sources of data and their reasoning used in drawing up paper (1). The model corn-rye cropping system proposed and its ability to remove and recycle nitrogen and phosphorus was based on applicable theory and experience from small plot studies reported in the literature. Behavior of the soil under the high moisture regime anticipated was based on assumed performance using a deep drainage system designed to prevent waterlogging of soils even at the wettest times of the year.

Conclusions that the Corps is presently studying results of a system in early stages of operation at Muskegon, Michigan and of the larger operating "land treatment" systems in the US or that several military posts are contemplating installation of systems did little to reinforce the confidence of Purdue scientists in the reliability of such vast plans to clean Chicago area wastewaters by using "land treatment".

Purdue explained that it still had reservations toward proposed designs for "land treatment" during a second agricultural advisory committee meeting called by the Corps in January and asked that costs assessed to "land treatment" alternatives reflect different levels of needed acreage in case acreages proposed to utilize 13 $\frac{1}{4}$  inches of wastewater annually did not prove viable. The Corps anticipated this possibility in its reply of January 5 to concerns felt by Purdue scientists where it summarized (pages 3 and 5) that, if double cropping with rye following corn does

not prove economically justifiable and acceptable to farmers, greater acreages of land would be needed in systems.

Additional correspondence occurred between Purdue scientists and Corp's planners where factors such as phosphorus-fixing capacities, nitrogen transformations and use as affecting water cleanup by crops, and potential increase in corn disease incidence were discussed in some detail.

Testimony was made before the Public Health and Environmental Affairs committee of the Indiana House on a bill which would ban wastewater shipments across state lines without express agreement of the Indiana legislature.

Purdue's Cooperative Extension Service field staff publicized hearings to be held in March by the Corps and some 4,000 persons attended. A summary of Purdue's involvement as outlined in the foregoing was made at this meeting and concerns with certain phases of "land treatment" were made clear. A plea was again made for adequate pilot testing to settle concerns felt by farmers and agriculturists alike.

Purdue scientists recently participated in the final meeting of the agricultural advisory committee to the Corps. Brochures released to the public for this meeting and the final public hearings of July 30 and 31 and August 1, 2 and 6 indicate that construction and operating and maintenance costs for "land treatment" alternatives are computed only for the most favorable assumption of land needs where 134 inches of wastewater can be utilized per acre annually. Because there is fully justifiable concern that a viable productive row crop agriculture may not be possible at such rates of wastewater application Purdue agriculturists recommend that costs be computed for a system using land sufficient to provide for two lower rates of water use, perhaps one quarter and one half less than the 134 inches presently envisioned.

This request appears justifiable not only in regard to nitrogen utilization and adequate water cleanup but to potential losses to farmers from several sources which might negate expected gains to be derived from the system.

At the request of concerned Extension specialists and Extension Directors of



the 12 north central states, Purude has outlined its experiences with C-SEIM and has recommended changes in procedures needed if the Corps and Extension are to be involved in an educational program for the public and obtain greater receptivity toward "land treatment" adoption. This is done with a desire to help other states, where wastewater management studies are underway, to participate more meaningfully in bringing these before the public.

#### Conclusions

While we have appreciated being involved in C-SEIM studies and public releases the late date at which we became involved and the lack of prior advice of agricultural and rural community interests as reflected in the plans, made effective educational efforts very difficult. If water cleanup is ever to be achieved as called for by present laws much greater participation and understanding of the affected public will be needed no matter what technologies are proposed in the various areas of the US.



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

21 December 1973

Mr. Harry M. Galloway  
Extension Agronomist  
Purdue University Cooperative  
Extension Service  
Department of Agronomy  
Hall of Life Science  
Lafayette, Indiana 47907

Dear Mr. Galloway:

This is in reply to your final comments on the wastewater management study for the Chicago-South End of Lake Michigan (C-SELM) area. These comments which were included in the official transcript of the final public meetings also are being reprinted in Appendix I, Comments, along with this reply.

Your comment regarding acceptance of the land treatment system by the people residing outside the C-SELM area is a valid concern. It is recognized that the concept would require their longtime commitment to a different but not necessarily restrictive farming system. We also concur that there is an apprehension on the part of the residents that implementation of such a system would prove disruptive to their normal life style, community structure and the pattern of land values. All of this has been documented in the report. It, also, should be noted that our design and site lay-out were changed to be responsive to those anxieties and once the validity of the land treatment system has been demonstrated, acceptance by the agricultural community should be forthcoming.

As you have stated many recognize that the essence of the land treatment process is nutrient recycling to benefit growing crops. Admittedly, this concept is not highly regarded by the farmers. Instead, the farmer prefers to purchase his nitrogen and phosphorus and other agricultural chemicals in a commercial form and avoid involvement in field operations that are different from accepted farming methods.

Agricultural scientists from both Purdue and the University of Illinois are to be commended for their participation which has been both extensive and constructive. I feel that through your efforts we have been able to

NCCPD

Mr. Harry M. Galloway

refine and obtain a more realistic system design. As a result, the irrigation system, the rate of application and the amount of treated wastewater have been effectively balanced to achieve an optimum agronomic operation. Implicit in the agricultural program is a closed-cycle control of the nutrients and other chemicals as well as protection of the crop and soils biosystem. We too have supported the need for additional research in order to obtain certain performance data required before final design is attempted. Examples of such research are cited in Section XI of Appendix G and apply not only to the land treatment system, but also to the plant technologies. The demonstration program of the U. S. Environmental Protection Agency at Muskegon, Michigan to which you refer represents a full-scale pilot testing of the land treatment system. This project, together with other types of recycling measures that are being studied throughout the United States should provide the answers to many of your uncertainties.

I believe that this office has answered the questions that you and your associates have raised. The research and engineering criteria employed as a basis of design have not been disputed and in reality much of the concern being expressed is the result of an unfamiliarity with the new concepts. This has been the situation in the past when changes have been suggested and will continue to be experienced in the future.

At the same time, it should be realized that design of any system must be predicated on both an economic as well as social effectiveness. To arbitrarily employ a design involving lesser application (irrigation) rates than the crop and soil biosystem can effectively process would be contrary to these objectives. Technically, the rate of application and design of any drainage system is predicated upon the interrelationship of the soil's infiltration, permeability and percolation rates; the latter rates being fixed by the physical properties of the surface and subsurface soils. While the system design and soil parameters permit the use of lower irrigation rates, such modifications would only result in the commitment of more resources including land, power and money as well as cause greater institutional and social impacts. This would not be in consonance with acceptable standards for system design.

On the other hand, payments have been included in the system's cost to offset any potential loss in income that would be experienced by the participating farmer. Covered are such income sources as the long-term capital gains in land value as well as crop production losses which result during installation of the system components.

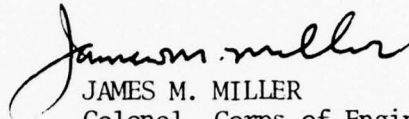
NCCPD

Mr. Harry M. Galloway

21 December 1973

In closing, I do appreciate your concern that the time frame for this study did not permit the pursuance of a more effective public educational program. Nevertheless, it was important to recognize the need for a study such as this and that completion was critical to the current public dialogue regarding the clean-up of our environment.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller".

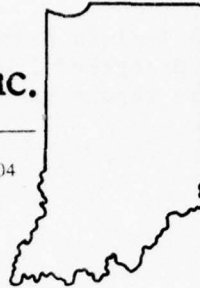
JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



# Indiana Farm Bureau, Inc.

130 East Washington Street

Indianapolis, Indiana 46204



*The Voice of Agriculture*

Phone: 317-631-8361

November 13, 1973

Department of The Army  
Chicago District, Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Attention: James M. Miller, Colonel, District Engineer

Dear Sir:

The Indiana Farm Bureau, Inc., in response to your letter of September 24, 1973, concerning the wastewater management study for the Chicago-South End of Lake Michigan (C-SELM), wish to state that the Summary Report and eight Appendices still fail to justify the consideration of either land treatment system (Alternatives IV and V) by any state or local agency who may be responsible for implementing a wastewater management system in compliance with provisions of Public Law 92-500.

Farm Bureau has previously testified that the study has failed to show or assure that the land treatment systems can: (1) assure that there will not be a build-up of heavy metals in soils irrigated with effluent from the secondary treatment lagoons that could result in toxicity to plants and animals consuming forages produced on such lands; (2) make certain that the ground water within the disposal area would not become contaminated and present a human or livestock health hazard; (3) be operated to produce corn, rye or other crops efficiently because of agronomic deficiencies; (4) receive acceptance by citizens of the area because of unacceptable odors and (5) assure continued economic growth of communities affected by a land treatment system.

Progress Report (July 1, 1972 to June 30, 1973) of the Environmental Flow of Cadmium and Other Trace Minerals, Volume I, reviewed at Purdue University on October 15, 1973, revealed that the level of metals copper, lead, zinc and cadmium in soils tested decreased as distance from East Chicago or Gary increased on a North-South transect. These metals have accumulated from air-borne particulates over the years and warn of a much greater build-up in soils irrigated with industrial and municipal sewage.

The Indiana Farm Bureau, Inc., again cautions that any land treatment system of such magnitude must first receive years of extensive research in order to decide whether it merits recommendation as an acceptable regional

I-V-41

I-V-40  
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Department of The Army  
November 13, 1973  
Page 2

waste treatment system. The Indiana Farm Bureau must, therefore, vigorously oppose the inclusion of the described land treatment systems as viable or feasible alternatives in this report to the Congress.

Respectfully submitted,

A handwritten signature in cursive script, reading "Acord Cantwell".

Acord Cantwell, Director  
Natural Resources Department  
for the  
Indiana Farm Bureau, Inc.

AC:dmp



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

11 January 1974

Mr. Acord Cantwell  
Director, Natural Resources Department  
Indiana Farm Bureau, Inc.  
130 East Washington Street  
Indianapolis, Indiana 46204

Dear Mr. Cantwell:

This is to acknowledge receipt of your comments on our draft report regarding the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter along with this reply will be published in Appendix I, Comments.

I certainly can appreciate your concern about the land treatment system but must take exception to your conclusions that this technology is neither a viable or feasible treatment alternative. There is adequate technical data available to the scientific community to facilitate its design and implementation. Admittedly though, the land treatment system is the one technology which is the least well-known to the general public and, because of this situation, has been the subject of the most questions. As a result, an extensive amount of supportive data has been provided in the design appendices. Included are technical details responsive to your specific questions, the answers to which are summarized below. These answers are presented in the same sequence in which the comments were raised.

The metal ions are held in the soil and are susceptible to uptake by the plants. However, the amount of uptake should occur only to the extent normally experienced with the individual crop specie. In well-drained soil with a pH value above 6.0, it is unlikely that a phytotoxic condition will develop from irrigating crops with wastewater which has received the equivalent of secondary treatment. Actual field research by the University of Illinois has demonstrated that fact by using sludge obtained from conventional wastewater treatment plants as crop fertilizer. This sludge had at least a hundred times greater concentration of heavy metals than the treated wastewater which would be applied to the biosystem of soils and crops. The research studies show that while the amounts of some essential and non-essential chemical elements in the plant tissue may increase, there was no evidence that the accumulation would be hazardous

11 January 1974

to animals consuming the produce. Crop plants tend to accumulate potentially hazardous concentrations of a particular chemical element only when there is a nutritional imbalance. Since a viable fertility program (including the application of soil amendments, such as dolomitic limestone) is to be maintained, the management practices and monitoring system should preclude a harmful buildup from ever occurring. Also noteworthy is the fact that the referenced research work has been monitored by the U. S. Food and Drug Administration and to date that agency has not felt it was necessary to require additional testing with animals. This conclusion itself is indicative as to the lack of any evidence that public health hazards would be induced into the normal food chain.

Extensive engineering effort was expended in the design of the drainage system. See Appendix B-IV-A-39. The drainage system was designed to (1) maintain the integrity and effectiveness of the crop and soil bio-system and (2) control the movement of surface and groundwaters in such a way as to prevent out-migration of either flows. Moreover, the effects of the reclaimed water from the land treatment system on the groundwater quality were assessed. This included analyzing the potential of reversible and oscillatory flows occurring between the aquifers located inside and outside the irrigation areas. Based on this latter analysis it was concluded that while the reclaimed water was of potable quality it would probably contain a higher concentration of dissolved solids than might be found in the outlying areas. Therefore, the system design was modified and associated costs added to isolate the agricultural area's water supply from the reclaimed water. See Appendix B-VII-B-25.

The operation of the land treatment system is specifically designed to maintain the agronomic integrity of the cropping program. It is significant that the land treatment process itself is based on a design that employs existing agronomic practices including proven planting and management criteria, and utilizes known soil scientific principles. The process design is purposely controlled and balanced to effectively utilize the complex physical and chemical reactions in the soil; the biological processes of the soil's bacteria and fungi; and the natural crop uptake. All of these factors form the specific bases for designing the farmers' present fertility program and cropping practices. The one current constraint faced by the participating farmer will be the limitations imposed on the types of crops which can be used with the irrigation system. This factor, however, can be overcome by development of other crop hybrids that can be used with the land system.



11 January 1974

The potential of unacceptable odors stems from the possibility of a spring turnover in the storage lagoons. As we have indicated the effect of this turnover can be overcome by adding oxygen to the storage lagoon. This would be done with portable mechanical aerators for some 30 days after the air and water temperatures begin to rise, indicating the transition from winter to spring. The use of such aerators to eliminate the potential for odors is not new. Inducing oxygen into the wastewater prevents the surface water from becoming anerobic and thereby avoids odors associated with such conditions from being generated.

The assurance of continued economic growth on the part of the communities in and around the land treatment system was of similar concern to this office. However, our concern went beyond the economic aspects and also involved the implications on the life-style of those people residing in the affected area. The prototype studies undertaken in various parts of the outlying areas have indicated that the land system can be successfully incorporated into the existing and near-future patterns of land use. As we have pointed out, however, implementation of such a system, particularly on any large scale, would constrain the socio-economic structure of the affected area to one primarily agricultural in nature. As is discussed in Appendix G, Sections V-11 and VIII-24, this will run counter to long-range regional trends in commercial and residential expansion. The desirability and willingness to forego the potential in economic gain and change in life style, is a personal assessment, one which must be decided by those residing in the agricultural area.

Your reference to the progress report on the environmental flows of trace metals is pertinent to airborne particulates only. The findings of the research program at the University of Illinois are factual and, as previously discussed, preclude any hypothecation from other sources. Nevertheless, the concern over airborne particulates is pertinent to the two plant technologies, primarily the Physical-Chemical system. Both include incineration as part of the treatment and recycling processes. The effects of airborne particulates is of regulatory concern to the Federal and State environmental agencies which are seeking to reduce the ambient level of all airborne particulates including trace metals.

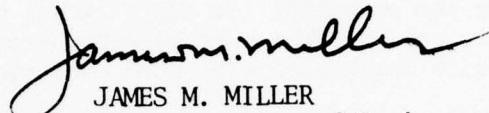
This office does agree that the land treatment system must be the subject of additional research. This concern applies to the plant technologies as well. Examples of the research which should be undertaken are presented in Section XI of Appendix G. Hopefully, the full-scale land treatment system presently being evaluated by the U. S. Environmental Protection Agency at Muskegon, Michigan will provide the type of data and information

NCCPD  
Mr. Acord Cantwell

11 January 1974

you seek. This demonstration program together with work being done by such schools as the University of Washington and Pennsylvania State University should provide sufficient data to verify the effectiveness of the Land Treatment system.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



# IROQUOIS VALLEY ASSOCIATION

P. O. BOX 11  
WATSEKA, ILLINOIS 60970



November 13, 1973

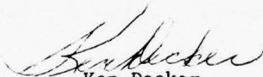
James M. Miller  
Colonel, Corps of Engineers  
Dept. of the Army  
219 South Dearborn St.  
Chicago, Illinois 60604

Dear Colonel Miller:

Enclosed is a copy of the observations of the Iroquois Valley Association relative to the Wastewater Management Study for Chicago, South End of Lake Michigan (C-Selm). We sincerely hope that these comments will be an assistance to the Corps in making recommendations to governmental agencies and authorities concerning wastewater management.

We do expect our comments to receive proper placement in Appendix I. Unbiased technical evaluations will be made and presented before July 1, 1974.

Sincerely,

  
Ken Decker  
President

KD:jk

Enclosure

I-V-47



# IROQUOIS VALLEY ASSOCIATION

P. O. BOX 11  
WATSEKA, ILLINOIS 60970



## OBJECTIONS TO THE USE OF PRODUCTIVE AGRICULTURAL LAND FOR WASTEWATER TREATMENT AS PROPOSED BY THE ARMY CORPS OF ENGINEERS

The C-Selm Study, a Wastewater Management plan for the south end of Lake Michigan has been completed by the Army Corps of Engineers. The study took more than two and one-half years to finish and contains much technical information. A reaction to the study was requested by the Corps within 45 days of its receipt. In order to review the study, the appendices had to be ordered which further shortened the time for review.

It is the opinion of the Iroquois Valley Association (IVA) that this is a highly irregular and challengable time table assigned by the corps. For that reason, a general reaction is prepared to be submitted within the designated time allowance.

The IVA will, however, assume a timetable of their own and prepare a technical rebuttal to the C-Selm study by July 1, 1974. Forty-five days is insufficient to make the in-depth review which must be done in order to endorse or reject the recommendations of the study. For proper evaluation, the depth of this study requires technical assistance not available in such a short period of time.

No one can deny the right of the IVA to research the proposals of Army Corps with as much attention to details as is required for unbiased evaluation.

The Iroquois Valley Association is an organization of concerned citizens



specifically opposed to any proposition which recommends land filtration as a part of wastewater conditioning and that would utilize large acreages of productive farmland for such purpose. The primary concern is that the C-Selm study implies through evaluation of systems and prediction of costs, that the methods employing land filtration are the most favorable and desirable processes to use.

Its further concern is that valid objections raised by agronomists, technical agricultural authorities, university specialists and citizens have gone unheeded and unrecognized by the study participants.

The Iroquois Valley Association is committed to affect legislation in the public interest because of the Corps' apparent unconcern for the human involvement precipitated by their recommendations. It is committed to prevent the use of untested procedures that may be adverse to local social, economic and agricultural interests. Members of the IVA, living within or adjacent to the C-Selm study area, question the validity of using some of the best farmland in the country for an apparent study. It is their consensus that this proposed gamble may include some of the top soybean and corn producing land in Illinois. There is a growing awareness of the increasing scarcity of new land and indications are that future food production will require the best use of all available agricultural land.

The Iroquois Valley Association demands that the Army Corps of Engineers delete from the C-Selm study further recommendation for the use of productive agricultural land for any part of a wastewater management program.

The negative social, economic and agricultural impact of that part of the proposal justified withdrawing such recommendation from the study. The Iroquois Valley Association, therefor, strongly urges that the Congress, citizens, planners and the Army Corps of Engineers look for a more practical solution to wastewater management problems.



**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

4 January 1974

Mr. Ken Decker, President  
Iroquois Valley Association  
P.O. Box 11  
Watseka, Illinois 60970

Dear Mr. Decker:

This is in reply to your comments on the draft report which deals with the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter, along with this reply, will be published in Appendix I, Comments.

Background data, including the technical supportive material, were furnished your organization as well as those individual members who participated in the study effort as members of the Agricultural Work Groups. This information should have provided your organization with an in-depth background, sufficient to make you acquainted with all the planning and technical material utilized in the study effort. Please be assured, however, that any information your organization wishes to provide at a later date will be of interest to this office.

The study does not imply that the system employing land filtration is either the most favorable or desirable to use. All three treatment technologies, i.e., Advanced Biological, Physical-Chemical or the Land Treatment systems essentially provide the same level of treatment. Moreover, the report specifically states and proves through the identification and measurement of impacts that there is no one best system. What this office has attempted to do is to underscore the fact that many factors must be considered in the decision-making process. The range of resources implications including financial, must be recognized as but just one set of factors in such determinations. There are specific institutional, social and environmental considerations which also must be included within the framework for decision. Each of these impacts will vary in terms of implications and magnitude and all factors must be weighed very carefully by those who have the responsibility for such decisions.

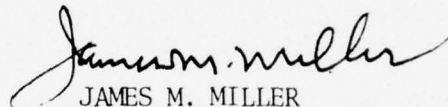
NCCPD  
Mr. Ken Decker

4 January 1974

The basic feasibility of the three treatment technologies has been demonstrated but, as yet, there are no universally accepted design criteria for the various unit processes involved. Thus, there are some design factors which must be resolved for all three technologies. Examples of these factors have been cited in Section XI of Appendix G. It is noteworthy that all agricultural experts agree that the land technology is workable. What concerns do exist require definitive research before fixed operational considerations can be applied in the final stages of design.

Though recognizing the Association's concern, this office does not have the prerogative to delete the alternatives employing land treatment technology from its assessment. To do so would have been contrary to the Administrative and Congressional intent of obtaining an unbiased evaluation of viable alternatives for areawide wastewater management systems. It should also be pointed out that unlike other developments, the land technology utilizes the agricultural lands instead of taking them out of the productive food program. We have recorded the strong social and political opposition that was expressed in the agricultural areas. We have also identified the implications and trade-offs that would be involved, if the resources of the agricultural communities were utilized to solve what essentially is an urban problem. The very fact that all of these considerations have been included in the report should assure your organization that a proper and in-depth evaluation was presented.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



Francesville Ind

November 13, 1973

Department of the Army  
Chicago District, Corps of Engineers  
Chicago, Illinois

Colonel James M. Miller:

In regard to waste water management and sludge treatment by the Army Engineer Corps C-S-E-L-M Project, using farm land as the living filter treatment is the stupidest thing I ever heard!

After valuable farm land is ruined with salts and ores from metal industries it will never be productive again. Too much sludge and waste water will not help grow a crop. Salts kill plants, too much metals ore such as zinc and etc will kill soil permanently.

Food production in the midwest is one of the world's most valuable assets! Why ruin it?

We have to protect it. Without food people don't last long.

I have been to fair area meeting on C-SELM presented by the Army Corps of Engineers. All opposing remarks were recorded by recording secretaries or on tape.

You should know by now that the Corps plan is not practical or desired by the people. Do forget the whole thing.

Why not work on processing sewage and sell it as fertilizer after screening out the undesirable elements.

a farmer

Kenneth Dalke President  
Palaski Co. Farm Bureau Inc.  
R.R. 1 Box 62A

Gracessville Indiana  
47946



DEPARTMENT OF THE ARMY  
CHICAGO DISTRICT CORPS OF ENGINEERS  
219 SOUTH DEARBORN STREET  
CHICAGO, ILLINOIS 60604

NCCPD

16 January 1974

Mr. Kenneth Dalka  
President, Pulaski County Farm Bureau, Inc.  
R. R. #1, Box 62A  
Francesville, Indiana 47946

Dear Mr. Dalka:

This is in response to your comments on the draft report for the Chicago-South End of Lake Michigan area wastewater management study. Your letter, along with this reply, will be published in Appendix I, Comments.

I appreciate your viewpoint on the land treatment system, particularly in its effect on the agricultural community. I would point out, however, that the primary objective of the study was to evaluate all viable alternatives that could be employed on an areawide basis to treat the wastewater generated in the study area. The concept of the land treatment process is not new. It employs accepted agronomic principles which insures a compatibility with today's crop production and farming practices.

A research program by the University of Illinois on the use of sludge as an agricultural fertilizer and humus builder has demonstrated that such nutrient recycling efforts will not be injurious to the crop and soil bio-system. Tests of the soil and crop tissues have confirmed the design concept that phytotoxic conditions will not develop from the spray irrigation system as long as the soil has a pH value above 6.0 and is well drained. Moreover, work done on the west coast has verified that salts will pass through the soil column in a soluble form rather than remain fixed within the soil. Finally, design of the collection and drainage system is predicated on protecting the crops' root system against saturation by maintaining the upper soil zone in an aerated condition. This, in turn, will also provide a normal environment for soil's micro-organism and fungi.

The study has documented the social and political opposition to the land treatment process. This opposition seems to stem from an inherent concern that the process would materially affect the life style, community cohesion and economic status of the agricultural area. Therefore, it is obvious that acceptance will not be forthcoming until it has been demonstrated that the land treatment system is fully compatible with the desires of the farming community. It is for this reason we have underscored the need for additional

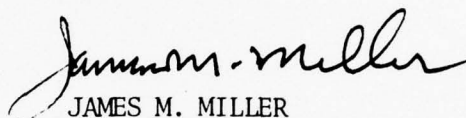
NCCPD  
Mr. Kenneth Dalka

16 January 1974

research as set forth in Section XI of Appendix G. We also have focused attention on the demonstration program being undertaken by the U. S. Environmental Protection Agency in Muskegon, Michigan. That particular project represents a full-scale pilot testing of the land treatment process. Once that project is on-line and in operation, data pertinent to the interest of the agricultural community should become available.

In closing, it should be pointed out that the land treatment system represents the most efficient method of processing wastewater and using it as a fertilizer. Similarly, the proposed method of using sludge as a fertilizer is comparable to the commercial packaging now being employed. However, the direct use of stabilized sludge bypasses the incineration process currently being employed and permits the farmer to attain the same results under controlled conditions.

Sincerely yours,

A handwritten signature in cursive script, reading "James M. Miller".

JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer



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**THE KANKAKEE VALLEY ASSOCIATION, Inc.**

Postoffice Box 272 - Halleck Street  
 DeMOTTE, INDIANA 46310

November 13, 1973

Col. James M. Miller  
 Corps of Engineers  
 Department of the Army  
 District Engineer  
 Chicago District  
 212 South Dearborn Street  
 Chicago, Illinois 60604

Dear Col. Miller:

Re: Wastewater Management Study  
 for the Chicago-South  
 End of Lake Michigan (C-SERM)

The following is respectfully submitted with a request that it be published without editing or omission:

The Association has examined the study and it is quite obvious that no in-depth analysis can be completed in the time allowed. We object strongly to this arbitrary and completely unrealistic 15, Nov., 1973 deadline for publication and inclusion.

According to your study "each evaluator was instructed to assure that all descriptions of the performance characteristics of the proposed systems and all estimates of impacts were accurate, although many evaluators questioned the validity of the assumption. To the extent that these descriptions and estimates are in error, the judgments of the evaluators are likely to be incorrect. The same implication holds for the effect of missing information, and absence of detail." Information available to the Association indicates that some of these "performance characteristics" and "estimates" used are in gross error, thus materially changing the effects and results. A competent study of the validity of these assumptions will require several months, and although underway, cannot possibly be completed by the 15, Nov., 1973 deadline.

A cursory examination discloses that some significant technical reports submitted the Corps by the Kankakee Valley Association and others have been omitted, and that statements by United States Congressmen, the Governor of Indiana and other state legislators and local officials and private groups, have also been omitted.

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 permit fully legible reproduction

I-Y-57

In order to at least partially cure these defects, we ask that the following documents (copies attached), be incorporated in the yet to be published appendix:

- (1) Letter from U.S. Senator Bayh to Rep. Boorda, dated 5/23/73
- (2) Letter from U.S. Senator Hartke to Rep. Boorda, dated 6/8/73
- (3) Letter from U.S. Rep. Landgrebe to Rep. Boorda, dated 5/29/72
- (4) Letter from U.S. Rep. Hillis to Rep. Boorda, dated 5/24/73
- (5) Letter from U.S. Rep. Myers to Rep. Boorda, dated 5/22/73
- (6) Letter from then E.P.A. director Ruckelshaus to U.S. Rep. Harsha, dated 3/27/72. (a copy of this was forwarded by the K.V.A. to the Corps for comment, but it has never been commented upon)
- (7) Telegram transcript from gubernatorial candidate Otis Bower (now Governor) to Rep. Boorda, dated 9/14/72.
- (8) Impact statement of Rep. Boorda on C-SELM
- (9) Statement of State Rep. John Guy delivered at 3/15/73 public meeting at Kankakee Valley High School.
- (10) Resolution No. 17, 1972 of Porter Cty. Board of Commissioners dated 10/2/72 in opposition to C-SELM.
- (11) Statement of Jasper Cty. Sanitarian, delivered at 3/15/73 public meeting.
- (12) Letter from Newton County Soil & Water Conservation District to Rep. Boorda, dated 9/29/72
- (13) Letter from Jasper Cty. Soil & Water Conservation District to Rep. Boorda, dated 9/15/72.
- (14) Letter from Lake-Porter Regional Transportation and Planning Commission to Col. Wells, dated 1/25/73.
- (15) Indiana Farm Bureau, Inc. statement delivered at the 3/15/73 public meeting.
- (16) Indiana Farm Bureau, Inc. statement delivered at the 8/1/73 public meeting, at Wesselsman, Ind.
- (17) Letter from the Valparaiso Chamber of Commerce to Rep. Boorda, dated 9/26/72.

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I-V-58

- (19) Statement of the Bethel Christian Reformed Church, De Motte, Ind., relating to C-SRM.

We further ask that the following attached representative press reports be included in the appendix.

- (1) Harvard Times - page 1, 9/15/72
- (2) Gary Post Tribune dated 9/19/72
- (3) (a) South Bend Tribune - page 21, 1/10/73  
(b) Gary Post Tribune dated 1/10/73
- (4) Gary Post Tribune - page 1, 3/16/73
- (5) Gary Post Tribune dated 8/2/73
- (6) Valparaiso Vidette Messenger, Rollie Bernhart's -  
"It Seems To Me", dated 8/20/73

Sincerely,



John V. De Graff  
Chairman, Kankakee Valley Assoc.

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## United States Senate

COMMITTEE ON THE JUDICIARY  
WASHINGTON, D.C. 20510

May 23, 1973

Honorable Walter J. Rooda  
R.R. 2, Box 377  
DeMotte, Indiana 46310

Dear Walter:

Thank you for your letter of May 16th and the enclosed bills, HB-1001 and HB-1002. You may be assured of my continued interest that the C-SELM project not be forced upon the residents of northwest Indiana.

I am at this very time reviewing the Public Works Appropriation request for 1974 which of course contains the funding for C-SELM. Any course of action I may take regarding the public works appropriations will be consistent with my previous statements on C-SELM.

Your kind words in regard to my stand on C-SELM are most appreciated.

Best regards.

Sincerely,



Birch Bayh  
United States Senator



VANCE HARTKE, IND., CHAIRMAN  
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GUY H. MCMICHAEL III, GENERAL COUNSEL

## United States Senate

COMMITTEE ON VETERANS' AFFAIRS

WASHINGTON, D.C. 20510

JUL 6, 1970

Honorable Walter J. Roripa  
State Representative  
Rural Route 2, Box 377  
Dell City, Indiana 46310.

Dear Mr. Roripa:

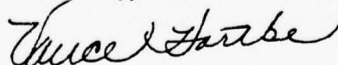
Thank you for your letter informing me of the recent passage of legislation to prohibit implementation of the Corps' C-SFLM study in Indiana.

I was indeed happy to learn of this development and would like to extend my appreciation to you for your initiative and leadership in sponsoring the legislation.

As you know, I too have been most sceptical of the living filter portion of this study, at least insofar as its application to North-western Indiana is concerned. In particular, I question the advisability of taking vast acreage of fertile farm land out of production for the sake of large scale experimentation when the potential risks to public health, the environment and the productivity of the land are not fully known. As an alternative, I would prefer to see the concept utilized in an effort to reclaim land, such as in the strip-mined areas of Central and Southern Illinois.

Again, thank you for your letter. I shall attempt to keep you informed of further developments in the C-SFLM study.

Sincerely,



Vance Hartke  
United States Senator

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I-V-61

EARL F. LANDGREBE  
2d DISTRICT, INDIANA

1203 LONGWORTH BUILDING  
TELEPHONE: (202) 225-5777

COMMITTEES:  
EDUCATION AND LABOR  
DISTRICT OF COLUMBIA

**Congress of the United States**  
**House of Representatives**  
**Washington, D.C. 20515**

DISTRICT OFFICES:  
1100 N. 9TH STREET, ROOM 205  
LAFAYETTE, INDIANA 47904  
TELEPHONE: (317) 742-1131

POST OFFICE BOX 323  
VALPARAISO, INDIANA 46385  
TELEPHONE: (219) 462-8750

May 29, 1973

Representative Walter J. Roorda  
Rural Route #2, Box 377  
DeMotte, Indiana 46310

Dear Walt:

Thank you for your recent letter concerning C-SELM, and the copies of H.B. 1001 and H.B. 1002. I have entered the text of these bills into the Congressional Record as further documentation of the opposition voiced by Hoosiers to the Corps of Engineers C-SELM study.

My own opposition, as you are aware, has been voiced repeatedly, and the opposition of Indiana residents to the study is being underscored by the survey which I recently distributed, completed copies of which are now being returned to my office by the thousands.

I wish to commend you and Governor Bowen's Administration for taking decisive steps at the State level in supporting my efforts on the Federal level to make sure that the C-SELM study never becomes the C-SELM project!

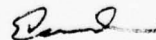
I have been assured repeatedly that the steps I have taken will result in stopping this project from ever becoming a reality while I represent the Second Congressional District.

Language has been placed in the Congressional Record <sup>(many months ago)</sup> which has the effect of blocking the C-SELM proposal. In addition, I have received emphatic assurance from the White House that my stand against the proposal will be supported and protected. Furthermore, I plan to present to the Public Works Committee the results of our current survey as well as other documentation of opposition to C-SELM in Indiana.

Again, thank you for your support and encouragement. I hope that you will maintain close contact with my office concerning the feelings of those whom you are elected to serve.

With personal regards, I am

Very truly yours,



Earl F. Landgrebe

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I-V-62

ELWOOD H. "BUD" HILLIS  
8TH DISTRICT, INDIANA

COMMITTEES:  
HOUSE COMMITTEE ON  
VETERANS' AFFAIRS  
HOUSE POST OFFICE AND  
CIVIL SERVICE COMMITTEE

**Congress of the United States**  
**House of Representatives**  
Washington, D.C. 20515

WASHINGTON OFFICE:  
1721 LONGWORTH BUILDING  
TELEPHONE: 202-225-5037

KOKOMO OFFICE:  
504 UNION BANK BUILDING  
TELEPHONE: 457-4411

ANDERSON OFFICE:  
201 FEDERAL BUILDING  
642-1777

MARION OFFICE:  
220 MARION P.O. BUILDING  
642-7227

May 24, 1973

The Honorable Walter J. Roorda  
House of Representatives  
State of Indiana  
Rural Route #2, Box 377  
DeMotte, Indiana 46310

Dear Walter:

This is to acknowledge, with my sincere thanks, your recent letter concerning the C-SELM study.

I certainly appreciated your sending me copies of the two bills which pertain to this matter and am pleased to learn that we are in agreement over this project.

You can be assured of my continued concern and I'll be sure to let you know of any further developments at the Federal level on this issue.

Thanks again for taking the time to write and I hope that you will continue to keep in touch in the future.

Meanwhile, with warm regards, I remain

Sincerely,



Elwood H. Hillis, M.C.

Hg

I-V-63

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JOHN T. MYERS  
7th DISTRICT, INDIANA

HOME ADDRESS:  
951 SECOND STREET  
COVINGTON, INDIANA 47928

WASHINGTON OFFICE:  
103 HOUSE OFFICE BUILDING 20013  
TELEPHONE: 222-229-2900

**Congress of the United States**  
**House of Representatives**  
**Washington, D.C. 20515**

COMMITTEE:  
APPROPRIATIONS

7TH DISTRICT OFFICE:  
107 FEDERAL BUILDING  
TERRE HAUTE, INDIANA 47606  
TELEPHONE: 812-238-1619

May 22, 1973

The Honorable Walter J. Roorda  
State Representative  
Rural Route 2, Box 377  
DeMotte, Indiana 46310

Dear Walter:

Your letter regarding the C-Salm proposal is appreciated. Thank you for bringing up to date an action taken by the General Assembly. Be assured of my continuing opposition to the plan.

Best wishes.

Sincerely,

  
John Myers

rs

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I-V-64



ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

March 27, 1972

OFFICE OF THE  
ADMINISTRATOR

Honorable William H. Marsh  
House of Representatives  
Washington, D. C. 20515

Dear Mr. Marsh:

In response to your inquiry concerning land disposal as a treatment alternative, I have prepared this letter to clarify the issues involved. These issues were raised in two recent reports. The Friends of the Earth have prepared an analysis which states that zero discharge is attainable using land disposal at a cost of \$50-\$55 billion. This cost range is compared with the Administration's estimate of \$316.5 billion using distillation of wastes to achieve zero discharge. Also, the Corps of Engineers has updated the original Chicago land disposal feasibility study reducing the estimated cost from \$14 billion to \$2 billion, projecting that land disposal would be less costly than treatment alternatives, and claiming that the removal efficiency of land disposal would be significantly improved.

We have reviewed both these documents, and have concluded that:

1. Land disposal is not equivalent to "zero discharge." Rather, it approximates the removal efficiency of "tertiary treatment."
2. The costs of applying land disposal techniques nationwide would be about \$161 billion. Proper corrections to the Friends of the Earth calculation would raise their \$55 billion to this level. By contrast, application of tertiary treatment nationwide would cost \$118 billion.
3. The social costs of land disposal, as exemplified by the Corps' Chicago study, are substantial and perhaps prohibitive.

Zero Discharge

The design manual for EPA's demonstration project in Muskegon indicates removal rates of 98-99% BOD, 98% Phosphorous, and 85% Nitrates. These removal rates cannot be considered as a "zero discharge." Rather, they

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I-V-65

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are equivalent to the removal rates of "tertiary treatment." Furthermore, there are many unknowns concerning the removal efficiency of large scale land disposal projects, e.g., possible salinity increases caused by evapo-transpiration, possible nitrate saturation and contamination, and unknown health effects. Until EPA's demonstration project in Muskegon and other projects are operating and evaluated, the applicability and removal efficiency of land disposal in a great variety of cases cannot be definitively stated.

#### Economic Costs

Both the Corps' Chicago cost study and the Friends' estimate of national costs require further analysis..

For example, we have estimated that by using the most cost effective design that the biological and chemical treatment costs for the Corps studies would be \$1.9 to \$2.0 billion as opposed to \$3.2 billion estimated by the Corps.

In contrast, the cost estimate for the land disposal project appears to be optimistic. Many of the components of this project have never before been built, thus, there is uncertainty about these figures. It should be noted that the preliminary estimate for the Muskegon project was \$18 million and the final bid price \$40 million.

The national cost for land disposal, based upon the Muskegon experience would be \$55 billion for capital expenditures and \$161 billion total cost including operation and maintenance, replacement and interest costs. The Friends of the Earth estimated that the total cost would be \$50-\$55 billion. A close examination of these calculations demonstrates that the Friends used the Muskegon cost figures for construction but not land acquisition. The study also did not include interest charges which alone amount to \$41 billion. Finally, the Friends' cost was based on an average daily industrial and municipal waste discharge flow that is significantly lower than the actual flow today. Thus, the appropriate cost comparison is \$161 billion for land treatment versus high level physical chemical treatment (tertiary) cost of \$118 billion.

#### Social Costs

The social costs of land disposal are substantial. Implementation of the Chicago proposal would require acquiring -- and removing from productive use -- 455,000 acres of prime agricultural land in northern

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- 2 -

I-V-66

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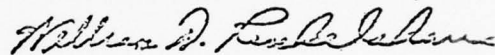
Indiana and Illinois. As the attached map shows, much of the land area of two counties would be affected. Moreover, 20,000 people, their schools and other public facilities would be displaced. The problems associated with this displacement would be difficult, time-consuming, and potentially socially disruptive.

#### Conclusion

While I believe land disposal is a viable alternative to conventional wastewater treatment, the foregoing analysis suggests it is by no means universally applicable. The economic and social costs incident to land disposal are substantial, and its treatment efficiency is not fully understood. Conventional treatment, land disposal, and other alternatives should be considered on a case by case basis to select the most cost effective solution to individual problems. The Muskegon project will provide the specific data we need to evaluate the land disposal alternative fully in each case.

Nationally, the land disposal alternative appears to be more costly than tertiary treatment. Neither system, however, is equivalent to "zero discharge", and zero discharge systems would be more costly still. Given these facts, we continue to believe that careful study and further Congressional consideration at a future date is required before a national commitment to a zero discharge goal can precedently be made.

Sincerely yours,



William D. Ruckelshaus  
Administrator

Enclosure

- 3 -  
I-Y-67

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HOUSE OF REPRESENTATIVES

WALTER J. ROORDA  
RURAL ROUTE 1, BOX 6  
DEMOTTE, INDIANA 46310



STATE OF INDIANA

COMMITTEES  
AFFAIRS OF LAKE COUNTY  
CHAIRMAN  
CONSTITUTIONAL REVISION  
CORPORATIONS  
COUNTY AND TOWNSHIP BUSINESS  
NATURAL RESOURCES  
TRANSPORTATION

Received  
September 14, 1972 3 PM  
DeMotte, Indiana.

From  
Indianapolis, Indiana.

Dear Walter:

Please extend my most sincere apologize to the citizens of Northwest Indiana for my inability to attend the meeting tonight at Hammond, Morton High School. However, impossible schedule commitment prevents me from appearing in person.

In my absence, I authorize you to read the following statement into the record of this meeting.

Quote: As Speaker of the Indiana House of Representatives, as a representative of that Body from the area affected by the proposed C-SELM project and as a Republican Candidate for Governor, I am unalterably opposed to the C-SELM project. As Chairman of the Indiana Legislative Council, I have taken two initiatives, First, I have directed the Indiana Legislative Council to study the legal aspects of this problem and to prepare Indiana legislation for introduction on the 1st



day of the 1973 Session to prevent Northwest Indiana from becoming a dumping ground for Illinois sewage. Secondly, I have requested information from the Environmental Protection Agency regarding the environmental impact of this project.

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I-V-68



HOUSE OF REPRESENTATIVES

WALTER J. ROORDA  
RURAL ROUTE 1, BOX 8  
DeMotte, Indiana 46810



STATE OF INDIANA

COMMITTEES  
AFFAIRS OF LAKE COUNTY  
CHAIRMAN  
CONSTITUTIONAL REVISION  
CORPORATIONS  
COUNTY AND TOWNSHIP BUSINESS  
NATURAL RESOURCES  
TRANSPORTATION

2.

I shal make every effort to keep abreast of this  
problem and shall continuously fight C-SELM from  
becoming a reality.

Signed

Otis R. Eowen, M.D.



I-V-69

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*Rep. Record*

IMPACT OF THE LAND FILTRATION PROPOSALS IV & V OF THE CORPS OF ENGINEERS C-SELM  
As evaluated by the KANKAKEE VALLEY ASSOCIATION OF INDIANA

The Corps of Engineers has been holding public meetings in Indiana and Illinois to discuss a number of alternatives for collecting and treating sanitary and storm wastes in the Chicago and S.E.L.M. area. The proposals include "in plant" treatment of wastes by Advanced Physical Chemical, and Advanced Biological processes in or near the waste generating areas and the land filtration or living filter treatments in somewhat more distant areas of supposedly porous soils.

The plant type or factory type systems as proposed are much to be preferred as they have the following advantages among many others:

1. Continuous treatment of wastes and storm water throughout the year, thus eliminating the excessive need for vast areas of storage and more uniform stream flow.
2. System operation and cohesive monitoring under relatively controlled conditions, enabling a more accurate discharge in relation to conditions over time.
3. Siting possibilities of almost zero area by comparison, utilizing existing open industrial area or abandoned urban space.
4. Low community impact because of the present and future capability for virtual encapsulation of processes and filtration, and collection of undesirable discharges.
5. The relatively few relocations of citizens needed if sited as above.
6. The exciting and tremendously useful synergism of fuel production of sludges recovered by possibly semi-automatic mechanism in plant type in conjunction with solid waste gasification plants.
7. Flexibility as to operation and capitalization and increasing technology.

By comparison, the "land filtration or living filter" proposals have many negative defects severely limiting the usefulness of these systems in humid, populated areas, such as the C-SELM.

1. Land filtration - living filter proposals, rely upon a living plant system to remove undesirable nutrients, especially in soils low in exchange capacity such as sands. Because of this basic fact, it is essential that the crop system be maintained in a vigorous healthy condition. Systems IV and V as proposed, are unlikely to achieve this condition without the use of massive amounts of herbicides, insecticides, and fungicides. The escape of these potentially hazardous substances into the underdrain, flow back to the re-use areas, into the atmosphere or into the food chain, is an area of extreme concern, which will require extensive study as most past research with chemicals of this type has been done under virtual drought conditions by comparison. F.D.A. must require complete new registration for all of these herbicides, insecticides, and fungicides under these proposed conditions.

2. Costs of land filtration are excessive when the total impact upon human and physical resources are considered.

- a. Reduced agriculture production. (Likely without excess application of chemicals or conversely extreme cost of production because of protection applied.)
- b. Nation-wide impact upon total food costs.
- c. Land condemnation and forced leasing.

High costs because of unusual number of farmers and land owners in market for new farms at the same time. Payments required because of Federal and State Relocation Act requirements, vs. a very limited resource available in C-SELM area, (land).

I-V-70

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d. Costs of reimbursement of citizens, business, industries, cities, suburbs, towns and small villages supposedly bypassed, but damaged by stagnated growth, as well as increased labor costs and reduced sales, reduced quality of air and other environmental deterioration. These are likely to be extensive as vast areas could be damaged if expected spring and early summer conditions occur, as referred to in U.S.D.A. Beltsville, Maryland study of expected agricultural impact of Muskegon - ( eight (8) weeks of stench).

3. The impact of these vast land filtration proposals strike at the heart of the basic rights of vast numbers of citizens as to their freedom of choice of occupations, home location, and home and community environment quality. It is felt by the Kankakee Valley Association and most Indiana citizens that these factors alone condemn these proposals.

4. It is considered unlikely that the system of land filtration will function in it's entirety, especially when consideration is given to the thousands of interacting forces upon it in the biological eco-system. As one possible example the total effluent application would seem to be feasible at a level of approximately twenty five (25) inches per year when impact upon climate is studied. (Newman elaborates in this report.) If levels above this are applied .... fog, haze and other excessively humid conditions are likely to prevail in the entire C-SELM area. This again enters the cost picture in terms of traffic accidents, lung damage, fuel and power consumption. Also, airport siting becomes extremely hazardous anywhere in the vast affected area of such a weather producing system. The effects upon the environment and the food chain of programs of this type are potentially extensive. Extreme care must be exercised and intensive testing accomplished before any system of cropping is accepted. As an example, a proposed minimum tillage program of corn production would require the extensive use of several herbicides and insecticides, and likely massive use of fungicides. Natural resistance of weeds, insects, plant pathogenic organisms will develop through selection, resulting in the need for either increased application of the mix of similar chemicals or the constant rotation of increasingly potent (possibly increasingly toxic to humans and animals, and fish), herbicides, insecticides and fungicides. This is not a matter to be taken lightly, in view of the underdrain return to the lakes and cities. Appraisal of the proposed flow rates in relation to chemical application and effectiveness is strongly urged. The need for a depressed water table in the underdrain system is a positive indication that the advocates of these filtration proposals do expect contamination to permeate the soil filter. (Impact Study Report, Muskegon, Michigan; mentions depressed underdrain prevents contamination of nearby ground waters.) Yet they are unable to "see" that the return of these same underdrain waters to rivers and streams is hazardous.

A non-minimum tillage cropping system requires more square miles of soil; however, many of the same effects are retained as to resistance and possible chemical discharge. Some of the newer soil insecticides used are extremely toxic to human life being related to the nerve gases developed during World War II. Some of the older more persistent insecticides available are suspect of being carcinogenic (cancer producing), and are ~~baneful~~ for root crops already in most countries. Detailed studies of flow rates and decay time of these chemicals under these very adverse conditions are mandatory prior to any proposal of implementation. In the likely event that all useful or effective herbicides, insecticides, fungicides do permeate the filtration threshold..... Then costs and returns must be allocated on a crop without aid. In the case of continuous corn, it is expected to be a crop failure after several years of insect, pathogen and weed buildup. It is entirely possible the weed growth could absorb the nitrogen and other nutrients during the first year. However, the decay and decomposition cycle could release vast amounts of undesirable substances to the underdrain system and of course the undesirable economic effects remain.

Much of the data accumulated to date by the proposals of land application, partially effluent application, has come from areas that are arid with high

evaporation and transportation rates. To extrapolate this to areas of higher humidity and rainfall without extensive testing is an undue risk of natural resources and communities!

In summary, it is the opinion of the Kankakee Valley Association and most Indiana citizens, that the extensive C-SELM Study has stimulated much useful debate, study, and thought, even though it appears to be a pseudo scientific research project. Its critical weakness is the unscientific procedure of determining the conclusion before the study and of aligning the data so as to substantiate the predetermined conclusion. The extremely detrimental effects of land filtration upon the human, social, economic, and environmental life stand out as stark warnings to those who are not bent upon the destruction of our nation's environment, resources and way of life.

Hopefully, much additional study will be given to the waste water problem and additional treatment options and synergisms investigated. We must guard against tying our area or nation to any one technology, as this could prevent the research needed to truly solve these waste problems. Let's not link ourselves to the declining technology of land filtration. The concept is good. - "From the land to the land". — This application is False - (C-SELM. From the land all over the world to C-SELM, to six hundred twenty five (625) square miles to twelve hundred fifty (1250) square miles. Rather, let's develop systems processing throughout the year, enclosed, nonnoxious, providing end products, that can be distributed throughout agriculture (and perhaps industry), through normal commercial channels and we will have true recycling of nutrients and proper distribution of water. Water itself, as proposed in land filtration in humid areas, is a pollutant under the definition of the Corps. (A resource out of place).

I-V-72

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STATE OF INDIANA

JOHN M. (JACK) GUY  
MAJORITY LEADER  
HOUSE OF REPRESENTATIVES  
THIRD FLOOR STATE HOUSE  
INDIANAPOLIS, INDIANA 46204  
  
115 WEST BROADWAY  
MONTICELLO, INDIANA 47960



INDIANAPOLIS 46204

MARCH 15, 1973

INDIANAPOLIS, INDIANA

REPRESENTATIVE JOHN GUY SENDS HIS REGRETS THAT HE COULD NOT BE  
HERE THIS EVENING TO SHARE IN YOUR CONCERN OVER THIS IMPENDING  
PROBLEM. HE HAS ASKED ME TO EXPRESS TO YOU HIS OWN DEEP CONCERN,  
ALONG WITH YOUR OWN REPRESENTATIVE WALT ROORDA, OVER THIS C-SELM  
PROJECT. MR. GUY IS DISTRESSED WITH THE THOUGHT OF THE HAVOC THAT  
THIS PROJECT OR ANY PROJECT OF THIS NATURE AND MAGNITUDE WOULD  
CREATE WITH OUR HOOSIER FARM LAND AND HOME SITES. YOU MAY REST  
ASSURED THAT THE RESIDENTS OF THIS AREA HAVE THE FULL SUPPORT OF  
JACK GUY TO PROTECT OUR INTEREST IN ALL OF INDIANA AS WELL AS  
OUR OWN AFFECTED AREA.

I-V-73

RESOLUTION NO. 17 1972

BOARD OF COMMISSIONERS  
OF THE COUNTY OF PORTER, INDIANA

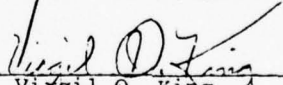
WHEREAS it has come to the attention of the Board of Commissioners of the County of Porter, Indiana, that the proposed project known as C-SELM for the disposal of sludge wastes from northern Illinois would involve areas near and contiguous to Porter County, Indiana, and

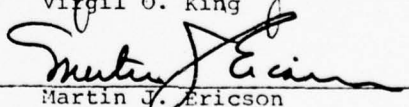
WHEREAS such project would be hazardous and detrimental to the citizens and interests of Porter County, Indiana, and adjacent counties, now, therefore

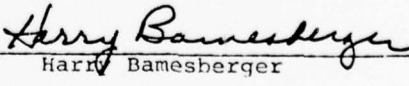
BE IT RESOLVED that the Board of Commissioners of the County of Porter, Indiana, determine that the proposed C-SELM project is harmful and possesses potential dangers and hazards and that this finding and position be forwarded to Congressman Earl F. Landgrebe, State Representative Walter Roorda and State Senator James A. Gardner for consideration in the defeat of such project.

PASSED this 2nd day of October, 1972

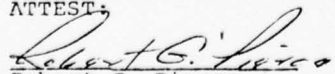
BOARD OF COMMISSIONERS OF  
THE COUNTY OF PORTER

  
Virgil O. King

  
Martin J. Ericson

  
Harry Bamesberger

ATTEST:

  
Robert G. Pierce  
Auditor

JASPER COUNTY DEPARTMENT OF HEALTH

COURT HOUSE

RENSSELAER, INDIANA  
47978

March 14, 1973

THE USE OF LAND AS A MEANS OF TREATING WASTEWATER: C. SELM  
AREA PROPOSED BY THE U.S. ARMY CORPS OF ENGINEERS, CHICAGO DISTRICT

Summary prepared by Todd A. Wille  
Jasper County Sanitarian, Rensselaer, Ind.

Section II, page 6, of the Progress Report No. 3, states, The three treatment technologies, advanced biological, physical chemical and the land treatment will produce effluent which meets the No Discharge of Critical Pollutants Criteria.

On the basis of the projected flow for the year of 2020 of 5 billion gallons per day, and the data given in the publication, The Use of Land as a Means and Method of Treating Wastewater, figure 2, page 6, and the total of 362,000 acres of land to be irrigated, the following facts were computed. It also must be kept in mind that this effluent has had primary and secondary treatment before it will be applied to the soil.

The following amounts of the various elements are given and computed in pounds per acre per year that will be applied.

**CHLORINE:** 333 lbs. per acre per year. I have checked many sources and to this date it can be said that no one knows the effects that chlorine in these amounts will have on the soils and the crops that will be grown.

**PHOSPHOROUS:** 170.56 lbs. per acre per year. A 150 bu. per acre corn crop will take out only 53 lbs. of this amount.

**POTASSIUM:** 333 lbs. per acre per year. A 150 bu. per acre corn yield will consume around 40 lbs. of this amount.

**COPPER:** 4.16 lbs. per acre per year. A 150 bu. per acre corn yield will consume only .06 lbs.

**ZINC:** 14.13 lbs. per acre per year. Again a 150 bu. per acre yield of corn will consume only .15 lb.

**IRON:** 83.18 lbs. per acre per year. At this time it is not known how much corn or any crop will consume; however it is known that crops may need a very small amount.

**MANGANESE:** 8.31 lbs. per acre per year. A 150 bu. per acre corn yield will consume only .09 of a pound.

JASPER COUNTY DEPARTMENT OF HEALTH  
COURT HOUSE  
RENSSELAER, INDIANA  
47978

BORON: 39.12 lbs. per acre per year. A 150 bu. per acre corn yield will consume only .12 lb.

Phenols: 3.32 lbs. per acre per year. These are not needed for any type of crop production.

TRACE METALS: 18.34 lbs. per acre per year. These include such hard metals as, Aluminum, Cadmium, Chromium, Lead, Nickel, Mercury.

ARSENIC: 12.48 lbs. per acre per year. With this amount of arsenic and the above mentioned phenols, in my judgement could seriously affect the earth worm and other soil insect population. These organisms are very essential for helping to maintain the necessary soil structure.

OILS & GREASES: 416.00 lbs. per acre per year. It might be said that these oils & greases for the most part are degradable. I serious doubt this if in fact it is claimed. Take into consideration the source of deposit and the miles of travel in the sewer lines and the lifting of the effluent to the lagoon areas and then spent ~~4/4/~~ 4 and 3 days, then traveling miles more to the land site through the irrigation systems. If these oils and greases are claimed to be degradable it would certainly seem, from this source, they would not be present in the analysis shown in the previously quoted source from which these computations were made.

TOTAL NITROGEN: 686.26 lbs. per acre per year. A 150 bu. per acre corn yield will consume around 130 lbs. of this amount, and around 50 lbs. for the rye if it is ever harvested. With no market at this time for the rye and the very difficult if not impossible task of harvesting, it would seem highly unlikely it would ever be harvested.

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JASPER COUNTY DEPARTMENT OF HEALTH

COURT HOUSE

RENSSELAER, INDIANA

47978

While it has been stated by the Corps that there is no health hazard possibility arising from the irrigation of the effluent, I call your attention again to the analysis that was previously noted on page 6 figure II of the publication, "The Use of Land as a Method of Treating Wastewater", it shows there is still a trace amount of bacteria and pathogenic viruses after current disinfection practices. This could, in our estimation, pose a definite health hazard.

Now, I call your attention to the material presented in the same publication on page 12, figure 4. In this, figure 4, the analysis shows only 2 of the plant nutrients to present in the effluent after it has past through the soil. These are 1, total nitrogen, 2, total phosphorous. Nitrogen in the amount of 2mg/L, and total phosphorous in the amount of .01 mg/L. Project these amounts in the term that can be readily understood means that nitrogen in the amount of 82.16 lbs. per acre per year, and phosphorous in the amount of 4.15 lbs. per acre per year will be returned in the effluent after it has past through the soil.

It must be said here that it is highly unlikely that only this small amount of nitrogen will found in the returned effluent, as we know that nitrogen travels with the water table and also it is not likely that any amount of any importance will be evaporating from the surface as the conditions for this to happen is certainly not present with this amount of effluent of 13 1/4 inches be applied to the area during the season.

Turning up so far we have only one thing to believe and that is that all of the plant nutrients and other elements that are applied and not showing up in the return of this effluent, and certainly not being used by the crops that are ~~to~~ grown, must be in the soil and remain there only to be added to in every year that the land treatment system is employed. This condition will only result in a fertility program that will be unbalanced to say the least.

Modern day farming practices calls for every effort to be spent in an attempt to maintain a fertility balance in every respect, to assure the farmer that the highest yields possible can be achieved. To create an unbalance in the fertility program can only lead to a most serious condition that can cause a high level of many toxicities to be present.

In other words, when there is present a large amount of the three basic plant nutrients such as nitrogen, phosphate, and potash in the soil and a large amounts of the micronutrients, such as zinc, copper, manganese, iron, boron and others a condition exists that is called antagonistic. For an example I quote the following from the publication "The Nature and Properties of Soils", by Luchman and Brady, both Professors at Cornell University.

JASPER COUNTY DEPARTMENT OF HEALTH

COURT HOUSE

RENSSELAER, INDIANA  
47978

"Examples of known antagonistic effects on the absorption of micro-nutrients are as follows:

1. Excess copper or sulfate may adversely affect the utilization of molybdenum.
2. Iron deficiency is encouraged by an excess of Zinc, manganese, and copper.
3. Excess phosphate may encourage a deficiency of zinc, iron and copper.
4. Heavy nitrogen fertilization intensifies copper deficiency.
5. Excess sodium and potassium may adversely affect manganese uptake.
6. Excess lime reduces boron uptake.
7. Iron, copper, and zinc may reduce the absorption of manganese."

Now, in regard to the boron in the amount of 29.12 lbs. per acre per year that will be deposited on the soils. Again, the analysis given in the above mentioned publication, namely the Use of Land as a Method of Treating Wastewater, it is shown that the PH content of the effluent will range from 6.2 to 7.4. This content definitely places it in the class as "acid" reading, and condition. The boron in this type of condition will be found to be fixed to the soil particles in the top layer of the soil. With the amount of 29.12, lbs per acre per year will seriously effect the germination of the seed, that is the corn seed. Since it is not present in any amount in the effluent after it has passed through the soil, it is only natural and sensible to believe it remains in the soil, only to be added to a like amount of 29.12 lbs., less the plant uptake which is minor, in the next year. It has also been stated in the Publication of Modern Corn Production, by Albridge and Lang that if boron is found in the amount for the crop of Alfalfa, that is .10 lb. per acre, it could seriously effect the germination of the corn seed.

The Corp Study says that the expected life of the land as a Method of Treating wastewater is 50 years. With the large amounts of the above mentioned materials spread, and remain in the soil, it is only logic thinking that our soils will become absolutely unable to germinate the crop seeds and become sterile. After, say 25 years, the project is no longer in use, there is no means providing a way the farmers can bring their farms back to the state of productivity it was when the project was started. No where in the study is there information and a cost study given to accomplish this task, and no means for the disposing of the contaminants if they can ever be extracted from the soil.

COPY AVAILABLE TO DDC DOES NOT  
PERMIT FULLY LESIBLE PRODUCTION

JASPER COUNTY DEPARTMENT OF HEALTH  
COURT HOUSE  
KENNSELAR, INDIANA  
47978

In conclusion and summary it would seem to us that every effort at your disposal should be expended to employ either the advanced biological, or the physical chemical method as a means of treating the wastewater and meeting the goal to purify the waters of our nation. To take the productive soils of our land and experiment with it to the degree that is proposed is not in line with the judgement of the best soil agronomist and soil scientist in our country. To take any part of the farming land that is classed as some of the most productive land in the country, and put it to this use would be an act that no doubt would live to haunt the guilty parties for the rest of their lives.

If we as a people with responsibility given to us by God, to leave this land of ours that we have only been entrusted with, in a state that is as good or better as when we took use of it, are to succeed in this matter, to allow this type of use, is in no way a way that we can fulfill our moral responsible.



*Newton County*  
**Soil and Water Conservation District**

306 E. Seymour Street - Kentland, Indiana 47951 - Phone: (219) 474-5543

**SUPERVISORS**

R. ROSS MCKEE, Kentland  
GORREL DAVIS, Lake Village  
THURMAN OSBURN, Morocco  
DALE DAWSON, Morocco

**SUPERVISORS**

ROY KINDIG, Brook  
GLEN DeYOUNG, Morocco  
GARRETT MUSCH, Lake Village  
GAYLORD LAWRENCE, Brook

September 29, 1972

The Honorable Walter J. Roorda  
Indiana House of Representatives  
Indiana General Assembly  
Statehouse  
Indianapolis, Indiana 46204

Dear Mr. Roorda:

The residents of Newton County, Indiana, are opposed to the disposal of Chicago sewage in northern Indiana because:

1. No county officials were ever notified that the Land Disposal Systems, as per Bauer Engineering and the Army Corps of Engineers, were being considered. We are definitely opposed to Alternatives H, I, J, K, or any similar plan.
2. Bauer Engineering Inc. is supposedly involved in both Muskegan County, Michigan and Chicago Sanitary District planning. Is this company's proposal the only answer to disposing of waste for this area?
3. Did Bauer Engineering make any test borings? Most of our soil types are inadequate for either a sanitary landfill or septic tanks under our present standards.
4. Four (4) wildlife and recreation areas comprising approximately 13,000 acres will be destroyed.
5. At least six (6) school districts, seven (7) towns and Interstate 65, plus many local taxing systems will be jeopardized. This is also prime land for an airport development in Indiana.
6. Much development in this area has stopped as a result of this story and other rumors.

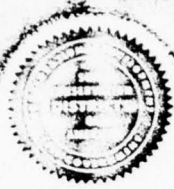
Our District has been involved in the orderly development for this land use in this area for 30 years. This, too, will be time and money wasted.

Sincerely,

*Robert R. McKee*

Robert R. McKee, Chairman  
Newton County Soil and Water Conservation District  
306 East Seymour Street  
Kentland, Indiana 47951





*Jasper County*  
*Soil and Water Conservation District*

~~XXXXXXXXXX~~  
R. R. 1

Rensselaer, Indiana

September 15, 1972



Honorable Walter J. Roorda  
R. 1, Box 6  
Demotte, Indiana 46310

Dear Mr. Roorda:

The Jasper County Soil and Water Conservation District has been organized pursuant to the Soil Conservation District laws of Indiana as a governmental subdivision of the State of Indiana.

The Soil and Water Conservation District has adopted a program outlining in general its soil, water, and related resource conservation and use objectives. The District is concerned with the conservation, use and development of soil, water and related resources to provide for the greatest enduring benefit to the individual, the community, and the District.

With these principles in mind, the Jasper County Soil and Water Conservation District Supervisors firmly believe that the plan for distributing and applying Chicago waste waters to Northern Jasper County is not in the best interest of the people and the community.

Thousands of acres of valuable cropland would be in jeopardy of total ruin. The people making a living on these rural farms would be forced to seek other employment.

The District also questions the application of "sludge" on the sandy outwash soils of Northwestern Indiana. These soils provide a poor filtering agent for purifying waste waters. The Indiana State Board of Health will not even approve a sanitary landfill site in these sandy soils because of the serious threat of contamination to nearby wells.

Therefore, the soil and water Conservation District Supervisors stand firmly opposed to the distribution and application of waste waters to Northwestern Indiana.

Sincerely,

William Ramey, Chairman

WR:bb

# Lake-Porter County Regional Transportation And Planning

8149 Kennedy Ave. Highland, Ind. 46322 219-923-1060

Commission

January 25, 1973

Colonel Richard Wells  
District Engineer  
U. S. Army Corps of Engineers  
230 South Dearborn  
Chicago, Illinois

Dear Colonel Wells:

At a meeting of the Lake-Porter County Regional Transportation and Planning Commission held on January 25, 1973, the Commission adopted the following resolution:

It was moved by Bryce Billings that the minutes show the Commission to be unalterably opposed to implementation of any portion of the C-SELM project which dumps Chicago sewage in Northwest Indiana. Virgil King seconded the motion. Motion carried unanimously.

The Commission also referred, on motion of Steve Manich, seconded by Jack Clem, to refer the attached "Proposed LPC Position Regarding Corps of Engineers C-SELM Wastewater Management Studies" to the Water Resources Planning Committee of the Regional Commission for study and recommendation.

Respectfully submitted,

NORMAN E. TUFFORD  
Executive Director

NET/cal  
Encl.

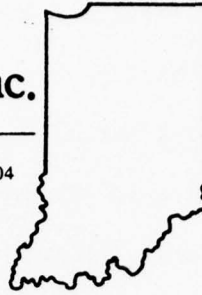
I-V-82

# Indiana Farm Bureau, Inc.

130 East Washington Street

Indianapolis, Indiana 46204

Colonel Richard M. Wells  
District Engineer, Corps of Engineers,  
U.S. Army, Chicago District  
219 South Dearborn Street  
Chicago, Illinois 60604



*The Voice of Agriculture*

Phone: 317-631-8361

Statement of the Indiana Farm Bureau, Inc.  
Concerning the Proposed Land Treatment Method  
As an Alternative Wastewater Management System  
for the  
Chicago-South End of Lake Michigan Area

March 15, 1973

The Indiana Farm Bureau, Inc. has given extended study to all-available resource material within and without of the State of Indiana, listened carefully to views expressed by farmers, scientists and engineers and still find the land-filter waste disposal system proposed by the Chicago District of the Corps of Engineers for the C-SELM area unacceptable to farmers and Farm Bureau members in the Newton, Jasper, Pulaski and Starke county area or any other area of Indiana.

Far too many unanswered questions have been brought out in the many discussions of the proposed Land-Filter Waste Disposal System. These have centered around:

1. Its potentially undesirable effects on the agricultural community as a place to live and to remain viable as a growing, self-supporting, efficient unit of government or school district. The views of the House of Representatives of the Indiana General Assembly are clearly expressed in the language of House Bill 1001 and House Bill 1002.

2. Economic and scientific voids in the proposed cropping system raise serious questions as to the long-term effectiveness of spray irrigation-soil filtration as an economical method for removal of water contaminants or the efficient production of crops. These are all documented in the "Major Questions Raised at Agricultural-Related Workshop Meetings".

The specific questions of metal toxicity, chlorine accumulation and nitrate leaching as they could affect soil productivity and ground water quality must be answered first by extensive research. Sludge and wastewater are both involved in this problem. Nitrate levels in ground water below 45ppm must be assured and pathogenic virus must not be allowed to enter. Only further research through farm-size pilot studies can supply answers to these potential problem areas.

Such studies are underway, or soon will be underway at Michigan State University and at Muskegon, Michigan.

The mere dispersal of land treatment sites over a wide area and the other minor modifications suggested here tonight will not solve these many problems.

The Environmental Protection Agency, William D. Ruckelshaus, Administrator, has stated in a letter to me, dated November 16, 1972, "that E.P.A. has some serious reservations concerning it".

#### In Conclusion

The maintenance and improvement of the environmental quality of the agricultural lands and rural communities of Indiana is of prime concern to our over 200,000 farm and rural Farm Bureau member-families. We believe that the proposed land-filter waste disposal system for the C-SELM area, using large quantities of Newton, Jasper, Pulaski, and Starke county lands,



would destroy both the economy and the environmental quality in the disposal areas.

We again urge, instead, that the Corps continue to refine the proposed physical-chemical and biological treatment concepts to find an acceptable solution to the C-SELM wastewater treatment and disposal problem.

Respectfully submitted,

*Acord Cantwell*

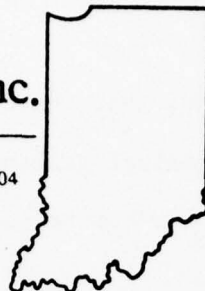
Acord Cantwell, Director  
Dept. of Natural Resources  
Indiana Farm Bureau, Inc.

AC:dmp

# Indiana Farm Bureau, Inc.

130 East Washington Street

Indianapolis, Indiana 46204



**The Voice of Agriculture**

Phone: 317-631-8361

*presented 8-1-73  
to Cons. Panel.*

Statement of the Indiana Farm Bureau, Inc.  
Concerning the Wastewater Management Study  
Chicago-South End of Lake Michigan (C-SELM)  
(Report dated - July 1973)

Addressed To:  
District Engineer, Chicago District  
U.S. Army Corps of Engineers  
219 South Dearborn Street  
Chicago, Illinois 60604

Presented August 1, 1973  
at the Public Hearing  
Rensselaer Central High School  
Jasper County, Indiana

Gentlemen:

The Indiana Farm Bureau, Inc. has given the Wastewater Management Study, as summarized in the adjunct document brochure, careful study. We have participated in public hearings and agricultural workshops conducted by the Corps and evaluated testimony presented by engineers, soil scientists and agronomists. These extensive studies have led us to conclude that Alternatives IV (Land Treatment Plan) and V (Advanced Biological-Land Treatment Combination Plan) are yet unacceptable to the over 222,000 Farm Bureau member families in Indiana.

Our statement of March 15, 1973; presented at the public hearing held at the Kankakee Valley High School; points out the many unanswered scientific, public health and sociological questions that surround the proposed land treatment plans. These criticisms still exist and are briefed as follows:

1. The potentially undesirable effects on the agricultural community.
2. The economic and scientific voids in the proposed agricultural irrigation and crop production system.
3. Dangers in connection with the accumulation of toxic metals, chlorine and nitrates on the lands and in the ground waters of the disposal areas.

Page 33, item IX (Changes in Public Preception Concerning Worth of Clean Water and Impacts From Plan), column three in this brochure - states "Imposes potential for delay in meeting the time-phased goals of PL 92-500 since an interim time frame would be required to demonstrate workability and its comparative socio-economic advantages to the agricultural community." This statement is just cause for the Corps to eliminate both alternatives IV and V from their Wastewater Management Study final report! The Corps should then propose their updated physical-chemical and advanced biological systems as in-state solutions for the region's wastewater treatment problems. Either of these two systems can accomplish the N.D.C.P. ("No Discharge of Critical Pollutants") goals of Public Law 92-500 (the Federal Water Pollution Control Act Amendments of 1972).

The Indiana Farm Bureau, Inc. is definitely opposed to the use of agricultural lands for the disposal of municipal and industrial sewage and wastewaters anywhere in Indiana.

Respectfully submitted,

*Acord Cantwell*

Acord Cantwell, Director  
Department of Natural Resources  
Indiana Farm Bureau, Inc.

AC:dmp

GREATER  
VALPARAISO



CHAMBER OF COMMERCE

VALPARAISO, INDIANA PHONE 492-1105 THE HOME OF VALPARAISO TECHNICAL INSTITUTE AND VALPARAISO UNIVERSITY

September 26, 1972

Representative Walter Roorda  
DeMotte, Indiana

Dear Walt,

The Board of Directors of the Greater Valparaiso Chamber of Commerce, representing 500 local businesses and citizens, hereby officially lends its support to your efforts to stop the ill-conceived C-SELM project which would convert thousands of acres of prime northwest Indiana farm lands to a huge open sewer and sewage lagoon system for the Chicago metropolitan area.

It is very unfortunate that such plans can be carried to this extent without the knowledge and/or consent of the many local governmental agencies and families directly affected. This type of action by federal government agencies - and our "neighbors" - causes great consternation on the part of business, industry, farmers, conservationists, and individual citizens. It is an insult to the basic concepts of our republic.

Cordially,

Harold K. Gossman  
Executive Vice President

HKG/jm

cc: Senators Hartke, Bayh, Percy, and Stevenson  
Representatives Landgrebe, Madden.  
Governor Whitcomb  
U. S. Army Corps. of Engineers, Chicago District  
Mayor Daley, Chicago  
Local News Media  
Minutes and Policy Files



**BETHEL  
CHRISTIAN REFORMED CHURCH  
DE MOTTE, INDIANA 46310**

We, the Church Council of the Bethel Christian Reformed Church in De Motte, Indiana wish to express our deep concern in regard to the C-SELM sewage proposals being considered for the area of Northwest Indiana. Out of the five remaining proposals (A,D,E,I,J) being considered by the Army Corps of Engineers, proposals I and J are of particular concern to us.

If either of these two proposals (I or J) would be enacted, the effects would be very destructive to us as a congregation:

1. With the disposal of the sewage into large lagoons scattered throughout our county (Jasper) and more particularly in and around the community of De Motte, we would face the possibility of being dispersed as a congregation. Such possible dispersion would confront us with an even more alarming possibility, namely, extinction as a congregation. Geographical location plays a crucial part in the formation of a parish. Therefore, given the set of circumstances in either of the above proposals, relocation for us would confront us with these implications. Should such a development occur, we feel that our rights to religious freedom to worship freely as a congregation and to exist as a duly organized and incorporated body of believers in Jesus Christ would be denied us.

2. As Christians we are also very concerned about our environment. It is our conviction that if the "land filtration" proposals (I and J) would be approved, this would result in gross abuse of rich, tillable, and productive farmland which God has blessed us with. We as a nation under God are responsible to Him for the use we make of this productive soil. Also the food produced from this land not only supplies the staples for life of those living in our community, but of the entire Chicagoland area, and even for various parts of our nation. Nothing has been gained, and much has been lost if, in the process of solving the sewage disposal problem, we create a food shortage problem.

3. As a congregation we also have a property investment at stake. In May 1970 we dedicated our new church facilities valued at over \$200,000. Many personal sacrifices have been and are being made to pay for this edifice. Beyond this cost, how can we measure the investment of time, love, and personal attachments?

For these reasons, we the Bethel Christian Reformed Church Council, representing our congregation of 297 persons, are opposed to the 'land filter' proposals I and J. We would strongly urge you to find other avenues for handling these waste products.

Respectfully submitted,

The Church Council of the  
Bethel Christian Reformed Church

*Rev. Michael S. ...*

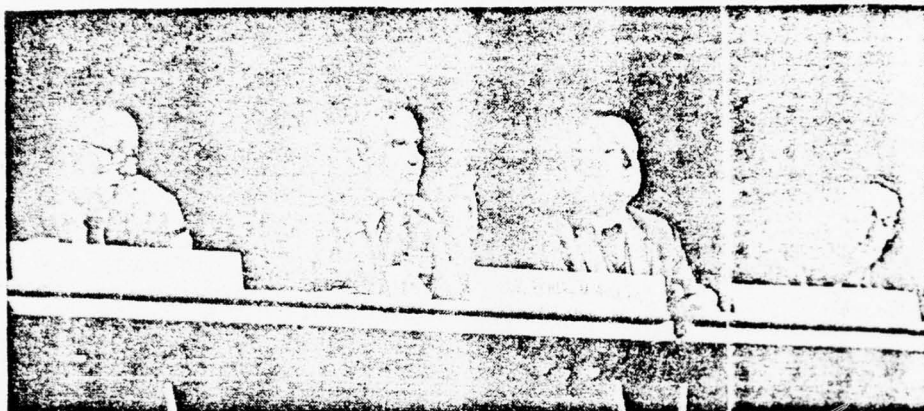
# THE TIMES

*Home Newspaper of the Calumet Region*

Hammond-East Chicago, Indiana; Calumet City-Lansing, Illinois. Friday, September 15, 1972

Vol. LXVII, No. 76

5 Sections—50 Pages—



*Col. Richard M. Wells answers objections to Army's waste water disposal plan.*



*Capacity crowd fills Morton High School auditorium at waste water hearing.*

I-V-90

# 'Living Filter' Plan Rejected

By RICHARD BUSSE  
Times Staff Writer

HAMMOND—A capacity crowd in Morton High School's auditorium thunderously applauded all rejections Thursday night of the Army Corp of Engineer's "living filter" area.

The crowd came from throughout the Calumet Region to attend the Corps' second public hearing on its ambitious waste water disposal plans for the southern end of Lake Michigan.

Many protestors appeared to be farmers or rural residents from Jasper, Newton, Starke and Pulaski counties south of the Kankakee River.

Apparently the majority held the same conviction. They said they didn't want 600,000 acres of their best farmland turned into a "cesspool" for Chicago and its suburbs.

They specifically abhor alternatives in the Corps' proposal which deal with areas south of the Kankakee.

Theoretically, the government would assume control of the farmlands in question to build waste water retention basins and treatment plants.

THE "LIVING FILTER" tag denotes those provisions of the Army's plan calling for waste water to be cleansed, in part, by processing and natural seepage

through the earth into man-made basins and then pumped into receiving streams.

Overall, the Corps' study envisions four counties in Illinois and those in Indiana totaling 2,600 square miles, and provides for a "working" waste water disposal system by the year 2020.

Most Indiana residents argued the plan means sewage and corruption poured into the Illinois streams by Illinois industries and municipalities in the Chicago area would be dumped in Indiana.

Corps spokesman, Col. Richard M. Wells, suffered the crowd's indignation with the caution that the Army was only presenting alternative plans for waste water disposal.

He said the Corps had boiled a myriad alternatives down to three plans.

ANOTHER waste water discussion  
(Continued on Back Page This Section)

# Filter Plan Rejected

(Continued from Page One)

will be held by the Corps at 7 p.m. on Sept. 18 in Thorne Hall at Northwestern University.

The first Northwest Indiana public hearing came last March. Only 50 persons attended.

State Senator William Christy D., Hammond, brought on the first peal of public thunder, Thursday when he went before the microphone after Well's presentation of the plan.

He conceded Wells gave a "fine" presentation, but he said Indiana needs experience with such plans before it adopts them.

"Will the plan poison our waters," he asked. "What about mosquitoes?"

Christy coined the "cesspool" notion, and the crowd responded with enthusiastic "nos."

THE CROWD LAUGHED when Christy, talked about there being too much open water around now to suppose that added retention basins south of the Kankakee would spawn few insects.

State Rep. Walter Roorda R., DeMotte, blasted the plan calling it dangerous. He also read a letter for Republican gubernatorial candidate Otis R. Bowen opposing it.

Roorda asked what would happen to farmers, their livelihoods, businessmen, and where businesses would be relocated.

The Indiana Department of Natural Resources said the plan was premature and urged that Corps planners coordinate more energetically with Indiana planning officials.

Indiana's Division of Planning also panned the plan and urged the Corps consult with Indiana Region 1 Rural-Urban Development Council headed by Samuel Ennis of Hammond.

John Vasconi, East Chicago city planner and a member of the Lake-Porter Regional Transportation and Planning Commission later called the Indiana planning division's statement "political."

"They want to take power away from the Lake-Porter commission and have always wanted to," he said.

Wells promised more public hearings will be held.



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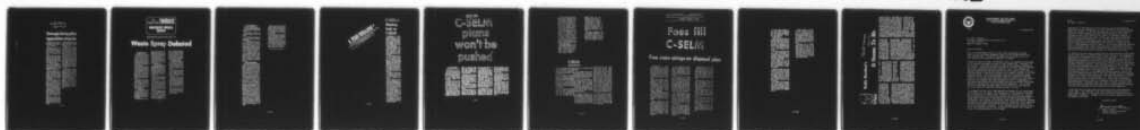
CORPS OF ENGINEERS CHICAGO ILL CHICAGO DISTRICT  
WASTEWATER MANAGEMENT STUDY FOR CHICAGO-SOUTH END OF LAKE MICHI--ETC(U)  
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*The Post Tribune*  
*Sept. 19, 1972*

## Sewage dump plan opposition mounts

NIPSCO won't support  
sewage dump plan if Kanka-  
kee Valley people oppose it  
—Story on Page A4.

Opposition continues to  
mount against a U.S. Army  
Corps of Engineers plan to  
turn farmland in Northwestern  
Indiana into a dumping  
ground for Chicago-area sew-  
age.

Matthew E. Welsh, Demo-  
cratic nominee for Indiana  
governor, said Monday that  
Hoosiers "have better things  
to do with our land and air  
and water than to turn them  
into a gigantic cesspool."

The Corps of Engineers is  
studying several alternate  
ways to control future sewage  
and industrial wastes in the  
Chicago-South End of Lake  
Michigan (C-SELM) area.

The plan attacked most in  
Indiana would turn farmland  
in Newton, Jasper, Pulaski,  
Starke, Benton and White  
counties into receiving and  
treatment areas for sewage  
from Chicago and the Calu-  
met Region.

"The hare-brained scheme  
of the Army Corps of Engi-  
neers to use Northwest In-  
diana farmland as a sewage  
disposal area has received the  
outraged response it de-  
serves," said Welsh, adding,

"It is not that Hoosiers are  
unsympathetic to the sewage  
disposal problems of Chicago.  
It just happens that we have  
better things to do with our  
land and air and water than  
turn them into gigantic ces-  
spools."

The same Corps of Engi-  
neers plan that would affect  
Northwest Indiana also would  
use farmland in the Northwest  
Illinois counties of Grundy,  
McHenry, Will and Kendall  
counties.

Monday night, residents of  
these counties attacked the C-  
SELM plan during a public  
hearing in Chicago.

Residents of the Illinois  
counties that would be affect-  
ed by C-SELM echoed Indiana  
residents' claims the plan  
would render unfit for cultiva-  
tion more than 1,500 acres of  
Illinois and Indiana farmland,  
upset the region's water table  
and soak the area with more  
moisture than it could absorb.

The Corps of Engineers plan  
would pump Chicago metropol-  
itan sewage and wastewater  
into lagoons. The heavy resi-  
due would be dredged and  
used as fertilizer while the liq-  
uid residue would be sprayed  
on farmland after chemical  
treatment.

Also Monday, the Indiana  
*Stream Pollution Control*  
Board adopted a resolution  
"opposing any proposal to  
bring sewage into the state  
from other states . . . as a  
means of solving the pollution  
problems of C-SELM area."

Already on record as op-  
posed to the "living filter"  
pollution control plan for  
C-SELM are U.S. Sen Birch  
Bayh, D-Ind.; Gov. Edgar D.  
Whitcomb; Lt. Gov. Richard  
Folz and Republican gubernat-  
orial candidate Dr. Otis R.  
Bowen.

THE  
SOUTH BEND **TRIBUNE**  
NORTHWEST INDIANA  
EDITION

The South Bend Tribune, Wednesday, January 10, 1973 21

# Waste Spray Debated

By **THOMAS GRUBER**  
Tribune Staff Writer

**DEMOTTE** — Farm leaders from the Kankakee Valley in Indiana and officials of the U.S. Army Corps of Engineers debated, discussed and differed here Tuesday on various technical propositions and suppositions in a plan for spraying waste water as fertilizer on agricultural lands.

Some 50 persons crowded into a room at Kankakee Valley High School near DeMotte as the corps held its second of three meetings this week for farm leaders in Indiana and Illinois on its controversial paper "The Use of Land as a Method of Treating Wastewater — Its Meaning to the Community."

The paper is part of an extensive study by the corps on the treatment of waste water in the Chicago-South End of Lake Michigan area (C-SELM), part of which concerns spraying of waste over agricultural fields.

#### Outlines Study

Col. Richard Wells, Chicago district engineer for the corps, outlined the waste water study and was joined by several other corps officials in answering questions raised by the audience.

A general theme of opposi-

tion voiced Tuesday to the spraying plan was that the method was merely a planning concept with no proof or guarantee that the program would achieve supposed results.

One person suggested the plan should be tested on small, experimental plots before use of thousands of acres of farm land is proposed.

#### Experts Consulted

Col. Wells said "you can't be 100 per cent sure of the results with something new." But he pointed out in his presentation that experts in several fields, including agriculture, were consulted by the corps in drawing up the various treatment plans.

Much of the corps' agricultural data and suppositions were challenged at Tuesday's meeting.

Jack Nesbitt, an attorney from Rensselaer and an advisor of the Kankakee Valley Assn., which has opposed the spraying plan, introduced an official of Standard Oil Co. to act as technical spokesman for the group.

Points of contention raised by the association concerned the proposed 134 inches per year of waste water application and the effect of that quantity on herbicide control; the buildup of boron and its

effect on seeding; maturing of corn in the proposed 110 to 115 day period under conditions set forth in the plan; rate of nitrogen intake in the plan; and possible need for fungicides because of the amount of water used in the method.

#### Respond to Criticism

In answer to a criticism that there would be no need for the waste water spraying in periods of wet weather, the corps contended the drainage system would regulate water buildup.

The irrigation and drainage system is designed to provide water in dry periods and prevent the buildup of surface water in wet periods, it was explained.

Col. Wells stated that the meetings with farm leaders are designed to achieve an exchange of ideas, aiding the corps with evaluating advantages and disadvantages of the various methods of waste water treatment being considered.

The current status of the corps' study is design and evaluation of five alternative methods of waste water treatment, said Wells.

#### **List Alternatives**

The five alternatives are:

- 64 conventional biological treatment plants in Illinois and Indiana.
- 33 physical-chemical treatment plants in the two states.
- 17 advanced biological treatment plants in Illinois and Indiana.
- six dispersed land treatment sites (that would put some 300,000 acres under waste water irrigation), one of which would be in the Kankakee River area of Newton and Jasper Counties in Indiana.
- a combination of advanced biological plants and land treatment sites. Some 82,000 acres would be put under irrigation, including parts of Jasper and Newton Counties.

#### **Notes Responsibility**

Wells said the corps' responsibility ends with making the study and submitting a final report to Congress. The report will probably be made this summer and will not include a recommendation for use of any one of the alternative methods, according to Wells.

The philosophy behind the use of land in waste water treatment is returning nutrients to the soil, according to the corps. The army engineers propose that spraying of secondary effluent, with a low, balanced content of nitrogen, phosphorus and potassium, will minimize the need for inorganic fertilizer supplements and result in increased yields.

The corps has drawn up detailed plans of the proposed spraying method, including prototype models of irrigation areas. Large buffer zones and lagoons are included in the plan.

Wells said the land use method, along with the other alternatives, are designed to achieve one goal — water purity standards of the federal government.

State and local communities will be faced with choosing the method desired to achieve those standards, he said.

Meetings with the general public on the corps' plan will be scheduled sometime this year, prior to submission of the final report to Congress.

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**Post-Tribune**  
An Independent Newspaper Published Afternoons and Sunday Morning  
at 1065 Broadway, Gary, Indiana 46402  
By Northwest Publications, Inc.

THE POST-TRIBUNE  
F. 1 Wed., Jan. 10, 1973

## Meeting held on C-SELM

**WHEATFIELD** — A meeting sponsored by the Army Corps of Engineers for the purpose of acquiring information from the area agricultural community was held at the Kankakee Valley High School Tuesday with about 50 persons in attendance.

After a presentation of the land filtration system as proposed by the engineers — the same as one given at Valparaiso in December — a number of questions were raised, including the economics of the proposal.

A representative of Standard Oil Co., suggested that 110 and 115 day maturity ~~of the varieties that will be planted on treated soil, won't mature in the time allowed because of the climate.~~ He suggested that with evaporation of about 30 per cent of about 20 feet of water (the annual total of irrigation and annual rainfall), the cooling effect would cause the corn to grow taller with larger cell structure.

A spokesman for the farmers called for actual tests of the proposed system before the plan is submitted to Congress as a proven fact not theory.

Another point raised was in regard to herbicide use in treated soils. Herbicides penetrate to the most desirable extent and are most effective with about one inch of rainfall, it was stated, and are rendered nearly useless with more than three inches.

Col. Richard Wells, spokesman for the engineers, repeated earlier statements that implementation of the program could be made only with state and local approval.

Wells also said that he has no knowledge of plans to move the filtration sites from Jasper County into south Lake and Porter counties.

# C-SELM plans won't be pushed

By TOM STUNDZA  
Post-Tribune Staff Reporter

**WHEATFIELD** — The U.S. Army Corps of Engineers has decided not to recommend the controversial land treatment plan for sewage disposal in the corps' C-SELM project, the corps' Chicago District commander disclosed here last night.

Col. Richard Wells told The Post-Tribune the corps will recommend neither the land treatment plan nor any of the four other alternative plans but, in fact, will show the land treatment proposal as having the most drawbacks.

His disclosure came after a hearing here on the C-SELM — Chicago-South End of Lake Michigan — wastewater management study which was at-

tended by more than 4,300 persons at Kankakee Valley High School. Another estimated 1,000 persons had to be turned away for lack of space at the meeting site.

Residents of five Northwest Indiana counties at the hearing vocally rejected the C-SELM plan that provides for use of Hoosier cropland as a dumping ground for Metropolitan Chicago sewage and industrial wastes.

Last night's hearing was the last before the \$1 million study is to be forwarded to Congress by the Corps of Engineers.

The C-SELM project was ordered in 1971 to explore alternatives to current waste disposal methods within the 1,300-square mile C-SELM ur-

ban area from Chicago to Gary to Michigan City.

"You won't find one person in this building in favor of C-SELM's land treatment plan," said John DeGraff, president of the Kankakee Valley Association, the citizens group leading the opposition.

Col. Wells later told The Post-Tribune, "We have decided not to recommend any of the five alternatives we have developed. We will only list all the plans and all their pluses and minuses. And, at this point, land treatment will have the most minuses."

The hearing was the last of three arranged by the corps. Wells said the corps will study testimony from the three hearings before conducting a final review. He said the final

report on C-SELM is due by the end of the summer and it will be forwarded to Congress as well as any local governments involved.

Land treatment, as proposed by the corps, includes the channeling of wastes — human and industrial — onto some 300,000 acres of settling tanks, treatment facilities and irrigation areas.

The other four plans, which haven't been subjected to as much public outcry, include the expansion of current Chicago and Gary-Hammond-East Chicago sewage treatment facilities; the construction of newer, larger treatment plants or the combination of expanded plants and small land treatment areas.

In an attempt to eliminate some Hoosier opposition, the land treatment plan last week was revised to "leapfrog" or scatter sites throughout 600,000 acres of Newton, Jasper, Starke and Pulaski counties south of the Kankakee River.

This approach satisfied few people, said State Rep. Walter Roorda, D-DeMotte, who added, "As long as we are faced with the ugly spectre of C-SELM, caused by millions of gallons of waste flushed from the bowels of our metropolitan neighbors, we will continue in our opposition to this horrible nightmare."

The brightly lighted, yellow-walled auditorium at the Kankakee Valley High School about 50 miles southeast of Gary, was decorated with large posters saying "Se-

sewage down the drain. "Newton County won't stand for this manure," "Keep your own pollution" and others.

James Maas, a civilian engineer with the corps, expressed dismay with the apparent "emotional" reaction to land treatment by Hoosiers.

"We have recognized that the DeMotte-Wheatfield area is the growth center for this portion of Northwest Indiana and we are trying to develop plans that wouldn't interfere

## C-SELM

(Continued From Page One)

with this residential and commercial growth," he said. "People here are against a plan many engineers are sure will work."

His statements were disputed by Northwest Indiana agronomists, farmers and agricultural experts from Purdue University — all of whom questioned the elimination of productive farmland in favor of treatment sites for out-of-state sewage.

Others disagreed with land treatment plan suggestions that some acreage be irrigated seven to eight months a year with as much as 134

inches of treated liquid wastes.

They pointed out that the Kankakee Valley already receives between 40 to 60 inches of rainfall a year and has a very high water table now.

It again was noted that the plan to use sludge — the gunky residue of solid waste treatment — as a fertilizer still hasn't been proven as feasible for anything but corn — only one of many kinds of crops already grown in the Kankakee Valley.

A string of politicians, or their delegates, ranging from U.S. senators and representatives to county commissioners, strode to the microphone set up at center court of the basketball hardwood to speak

Among them, U.S. Sen. Birch Bayh, D-Ind., vowed continuation of the study won't be approved by the joint Senate-House Public Works Committee; U.S. Rep. Landgrebe, R-Valparaiso, assailed the corps for continuing C-SELM studies while doing nothing about the erosion of Lake Michigan or the flooding of the Kankakee, and State Sen. Ernest Niemeier, R-Crown Point, predicted the Indiana General Assembly will pass two Indiana House-passed anti-C-SELM bills now pending in the Indiana Senate.

In many respects, the gathering mirrored one in Hammond last year when C-SELM first was made public — those present cheered the waste water study's opponents and maintained an icy silence for some speakers.



THURSDAY, AUGUST 2, 1973

# Foes fill C-SELM

## Two more airings on disposal plan

**RENSSELAER** — There was nothing but opposition last night at a public hearing on the controversial Chicago-South End of Lake Michigan (C-SELM) plan to dump Chicago area waste onto Northern Indiana and Illinois farmland.

More than 2,000 persons jammed St. Joseph's College fieldhouse to hear and be heard at the U.S. Army Corps of Engineers hearing from which the Corps will prepare a report to Congress, according to State Rep. Walter Roorda, R-DeMotte.

Roorda said 1,000 chairs had been placed on the fieldhouse floor, and the bleacher section was filled, indicating an attendance of between 2,000 and 2,500.

Another meeting will be held tonight in Morton High School in Hammond, and a final meeting Aug. 6 in Thorn Hall at the University of Chicago. Roorda said small attendance is expected at those meetings because "urban areas aren't responsive to the problem."

U.S. Sen. Birch Bayh, D-Ind., told the audience here he would use his position on the Senate Appropriations Committee to block funds for any wastewater plan harmful to Indiana.

"We must make it clear here in Indiana, as I will make it clear in Washington, our strong opposition to the land treatment proposal," Bayh said. "No project should be undertaken without the consent of the people most affected, and those of us in Indiana don't want this project to go another step forward."

The C-SELM project as proposed would affect 256,300 acres of Northwest Indiana farmland, with 128,600 acres actually to be used for sewage treatment, according to "Alternative Plan IV" of the Army Corps.

U.S. Rep. Earl Landgrebe, R-Ind., of Valparaiso had a prepared statement read by State Rep. George Gardner, D-Knox, in the absence of Landgrebe who had just been released from a Washington hospital.

Landgrebe's statement said, "Congress has made it clear that the project is dead," and questioned continued emphasis in the program because "the Nixon administration already has stated that this project won't become a reality."

Roorda gave a resume of what has happened since the plan was proposed July 1, 1972, and then charged "the Army Corps hasn't listened to suggestions."

"The Corps should have altered its plans much more," Roorda said, "and should have brought the plans down to a size that is understandable."

"One more time we ask you (the Corps) to listen. All people in the area are opposed, and the Corps is without support."

Col. Richard M. Wells, district engineer for the Chicago district, conducted the Corps hearing along with staff members.



U.S. Sen. Vance Hartke, D-Ind., also issued a statement and had it read by George Van Til, his Northwest Indiana field representative.

It said in part:

"The Corps should stop all planning involving land treatment of waste water in this or any other state until the Department of Agriculture completes a full investigation and is a full participant in planning land treatment processes."

"We want to assure that the very latest technological developments can be taken into account to insure that highest standards of pollution abatement can be enforced."

Wells replied that "if the system is going to harm the soil, then the system isn't going to be employed. It should only be used if there is beneficial impact."

Others who spoke were representatives of the Kankakee Valley Association, county commissioners from Newton and Jasper Counties, mayors of affected cities and towns, and representatives of the Indiana Stream Pollution Control Board.

The Indiana Farm Bureau also voiced strong opposition. The bureau said in its statement that it "objected to potentially undesirable agricultural, economic and pollution effects."

Another speaker was Dr. William Paynter, Indiana health commissioner, who said the land disposal plan is unacceptable because there is no evidence it will produce the desired results. He added there has been insufficient research and study on the proposal.

Originally, the \$1 million study came up with 11 possible plans. The number has been reduced to five, one of which calls for disposing of the sewage by pumping it into Northwest Indiana along the Kankakee River and dumping it on 129,000 acres in Newton and Jasper counties.



## Rollie Bernhart's

*Lidella Fithian*

*8-20-73*

# It Seems To Me

To say the least, I must add I was surprised to hear that Tippecanoe County's Floyd Fithian was going to throw his hat into the political ring for a second try at wresting the Second District seat in Congress from incumbent Republican Earl F. Landgrebe.

Not that Fithian, a Democrat and a professor at Purdue University, wouldn't be capable of filling the seat if given the opportunity. He's educated, intelligent and sincere.

But, it's my honest opinion that Fithian doesn't possess the charismatic qualities needed to impress the electorate. IT SEEMS TO ME this was adequately shown in the outcome of balloting in 1972, when he was soundly defeated by Landgrebe. I don't think that the political scene in this 14-county district has changed sufficiently to warrant signs of a successful comeback for

the Purdue educator — despite Watergate.

Finally, it's the campaign cost. Does Fithian have the funds or sufficient financial backing to survive the high costs of a 14-county campaign for the \$42,500-a-year job in Washington? The bottom drops out of a campaign when the money runs out.

Defeat teaches a bitter lesson. The second time around can be even more so. Or, should I have said "could."

I HAVE HAD the impression that C-SELM was a dead issue. Especially in the wake of state legislation sponsored by State Rep. Walter Roorda, R-DeMotte, which passed the 1973 General Assembly and has been signed into law by Gov. Otis Bowen prohibiting interstate flow of sewage into Indiana, and also preventing the Lake-Porter Regional

Transportation and Planning Commission from implementing any aspects of the Chicago Waste Water Management Study conducted by the U.S. Army Corps of Engineers. There was only one vote against both bills in the House and Senate.

But, apparently the issue didn't die. In the mail from the U.S. Corps of Army Engineers, Chicago District, was a C-SELM study report, plus a Department of the Army letter, dated July 9, announcing public meetings, plus discussion of the final report and study findings.

What gives? The masses involved in Indiana have spoken. The opposition to C-SELM in any form was made clear, and legislation has been made law to prevent the federal government from forcing northern Indiana to consider any of the five alternatives.

Further, the federal move

becomes even more autocratic, when one considers the five sites for public hearings. Only two were in Indiana, at Hammond and Rensselaer. The other three in Illinois, one, of all places, being Thorne Hall at Northwestern University's Chicago campus. Why there? Why wasn't DeMotte tabbed for a hearing?

Despite Indiana's consistent opposition to any wastewater plan which will dump anything from Illinois onto land in this state, the Department of the Army proceeded with completing and pushing its five-alternative wastewater management study.

The Department of the Army letter noted, "Now is the time for all concerned citizens to evaluate the alternatives and indicate a preference..." IT SEEMS TO ME Indiana's concerned citizens indicated a preference long ago. They have said: "No C-SELM."



**DEPARTMENT OF THE ARMY**  
**CHICAGO DISTRICT, CORPS OF ENGINEERS**  
**219 SOUTH DEARBORN STREET**  
**CHICAGO, ILLINOIS 60604**

NCCPD

21 January 1974

Mr. John V. DeGraff  
Chairman, Kankakee Valley Association, Inc.  
Post Office Box 272  
DeMotte, Indiana 46310

Dear Mr. DeGraff:

This is to acknowledge receipt of your letter concerning the draft report on the wastewater management study for the Chicago-South End of Lake Michigan area. Your letter including the inclosures as well as this reply will be published in Appendix I, Comments.

During the course of study, considerable effort was expended in responding to the concerns and questions posed by your organization. Therefore, in all fairness, I must take exception to some of the comments contained in your letter. The Association was furnished an extensive amount of material during the intermediate and final stages of study. This included the technical publications and data base used in the system design as well as detailed answers to questions relating to the agronomic aspects of the land treatment system. Also furnished were copies of the information given Purdue University and the representative from the commercial fertilizer industry, all of whom worked with your group in reviewing our work efforts. Moreover, you together with representatives of the U. S. Department of Agriculture and Purdue University helped establish and schedule work group and public meetings held in the agricultural communities. All of this effort was undertaken to insure that the Association was kept apprised and could input its viewpoints during the course of study.

The framework for the social-environmental assessment was not constrained in the sense that you imply. The evaluators were furnished all available data pertinent to a system design, construction, and operation. It was their responsibility to assess the potential for social and environmental change which could occur if and when any of the NDCP alternatives were implemented. By so doing, still another facet of the implications involved in achieving the higher water quality goal was identified. This evaluation reflected our concern that attention had to be focused on factors other than just technical or economic. It was information such as this, as well as the institutional and resource consumption assessments that tended to insure the comprehensiveness of our study.



NCCPD  
Mr. John V. DeGraff

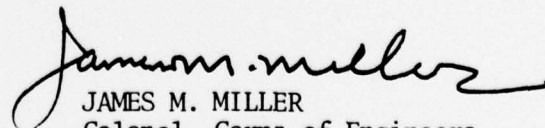
21 January 1974

Although all of the material received from the various participating groups has not been reproduced, all items submitted at the public meeting have been included. As you know the material as well as the viewpoints expressed at these meetings have been reproduced and the transcript retained as part of the study and the report. Furthermore, answers to questions raised during the course of the study have been incorporated within the report and appendices. For instance, some portions of the reports submitted by your organization were actually excerpts from an earlier study previously undertaken by this office in cooperation with the U. S. Environmental Protection Agency. The excerpts contained questions that were raised at that time by our consultants; information that this office specifically felt should be answered during later stages of study. This has now been done and the findings are included in this report.

In closing I can only express regret that the Association has misconstrued the fact that this is a planning study and not the basis for recommending authorization and funding for specific action programs. I do, however, appreciate your reaction to the prospect of committing the resources of an agricultural community to help solve an urban problem and feel that the concerns expressed by your Association must continue to be the focal point of future research programs. These programs should be able to demonstrate that the land treatment system can be incorporated into a rural area without an adverse effect on the agricultural communities and that there will be an economic gain to the participating farmers. To this end the on-going work by the U. S. Environmental Protection Agency, such as the full-scale demonstration program of the land treatment system at Muskegon, Michigan will prove helpful and provide pertinent information to citizens groups such as yours. In the meantime, it is hoped that Alternative IV will be viewed with the proper perspective. The designs and resultant assessments are meant to serve as a framework which can be used to make future decisions. Knowledge about the range of impacts associated with this and other alternatives should help others to understand the problems involved in formulating plans for regional wastewater management.

I also feel that the input from your Association has proven beneficial to our study. The re-design of the land treatment system during the final stage of study was the direct result of concerns expressed by the agricultural community. Changes such as these have improved the quality and depth of our study.

Sincerely yours,



JAMES M. MILLER  
Colonel, Corps of Engineers  
District Engineer